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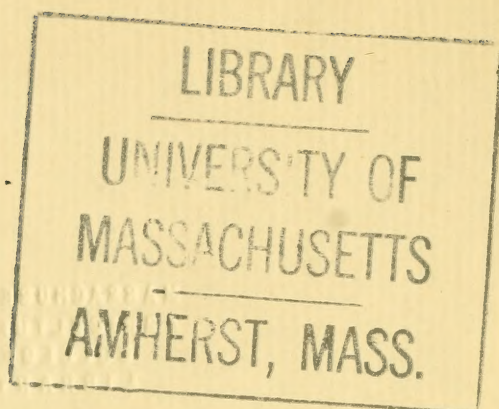


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ETHNOLOGY

Gleanings in Bee Culture

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NO. 1

Editorial

THE DEATH OF JAMES HEDDON.

We have just received notice that James Heddon, one of the best-known bee-keepers of 20 years ago, died at his home in Dowagiac, Mich., on Dec. 7 last. A biographical sketch will appear in our next issue.

GLEANINGS BEGINNING ON ITS 40TH YEAR.

A GLANCE at the bottom of the first cover page of this issue will show that GLEANINGS is now entering on its 40th year. The editor is also reminded that he is now entering on his 27th year at the editorial helm of this journal. Our managing editor, Mr. H. H. Root, has for 9 years selected most of the copy from our correspondents in the field.

SPECIAL ISSUES FOR 1912.

We call the attention of our readers to the fact that this issue, our "Beginners' Number," is the first one of a series of six special numbers. We are endeavoring to collect articles written by specialists that will furnish exceptionally valuable reading along the lines suggested. With this in view we are soliciting these articles from well-known authorities; for, although we have on hand more material than we can use for some time to come, it is always our aim to place before our readers the best that can be obtained.

The rest of the special numbers will occur as follows: February 15, "The Bee-keeper and the Poultry-man;" March 15, "Bee Culture and Horticulture;" May 1, "Preparing Colonies for the Harvest;" July 1, "Honey Harvesting and Marketing;" September 1, "Wintering."

In addition to these special numbers we are glad to announce a series of articles from no less an authority than J. E. Crane, of Middlebury, Vt., entitled "The Experiences of a Foul-brood Inspector." This series is illustrated, and we are sure it will prove valuable, not only to the foul-brood inspectors over the country but to all bee-keepers as well. Mr. Crane has had a long experience, and his position as an extensive producer of honey enables him to sift the wheat from the chaff as capably in these articles as he does in his regular department. There are eight articles in all, the first of which will probably appear in the February 1st

issue, the rest following in continuous order, with the exception, possibly, of the special numbers.

OUR COVER PICTURE.

THE picture on the cover of this number is suggestive of a beginner making his first start with bees. Notice the box containing the three-frame nucleus that he has just bought. One of the frames he has already transferred to the hive in readiness; the second one is just being lowered into position, while the third is still in the shipping-box. Those of our readers who made their start from a nucleus (and, in fact, those who started with a full colony) can remember the eagerness with which they watched for the arrival of those first bees, and the thrill they had in seeing them begin at once to fly in and out of the new hive. Of all the different lines of outdoor work taken up by suburbanites, or even residents of cities, we believe there is none more entrancing than that of caring for a few colonies of bees.

The extensive producers who may be styled professional bee-keepers, and who number their colonies by the thousands, can not afford to overlook the efforts of the amateur; for more than once such amateur, owing to his boundless enthusiasm and love of the revelation of nature which bee-keeping affords, has stumbled on to some new principle. Without beginners there can never be experts, for no man has yet been born with an inherited knowledge of bees and bee-keeping.

COMMON MISTAKES BEGINNERS ARE APT TO MAKE THE FIRST YEAR.

In any line of business there are some things that must be learned by experience; but in bee-keeping especially there are some difficulties that a beginner encounters that do not form much of an obstacle to one who has kept bees for a few years. While it is impossible to make a list of *all* the troubles that perplex beginners, and while explanations regarding them do not always take the place of the knowledge gained by real work in the yard, it is, nevertheless, profitable now and then to consider some of the mistakes that are most commonly made.

We will first take up the list of those that

are encountered at this time of the year.

First, a beginner, as he goes out among his outdoor-wintered colonies after the first warm fly day, on seeing the number of dead bees in front of the entrances naturally concludes that he is going to lose all his bees before spring. As a matter of fact, there is sure to be *some* mortality; and the stronger the colony the greater the number of dead bees that will be found.

Or we will suppose that Mr. Beginner has his hives in the cellar. Even when conditions are ideal, and he has complied with all the rules for safe wintering, he will find what appears to be an abnormally large number of dead bees on the cellar bottom; and again he is sure he is going to lose all of his bees. The fact is, there is bound to be a good many even when conditions are normal—especially toward spring. If he begins to tinker with his bees to see what is the matter, he will make matters ten times worse than they were.

Some over-enthusiastic novice may be inclined to open up his hives of outdoor bees every now and then to see how they are coming on. If they have been properly fed and properly housed, he will do well to leave them entirely alone.

Perhaps he is afraid they have not enough stores, and then he will try to feed them liquid syrup, which they will not take if the weather is at all cold. If the syrup is left on top of the cluster they will take it down the first warm day, and then they will fly out at the entrances to find more, only to become chilled and die on the ground. Feeding should not be practiced during winter except to give cakes of hard candy, queen-cage candy, or combs of sealed stores.

Sometimes a beginner on a cold day, looks down into his hive and finds a ball of bees only a little larger than his double fist, even in some of the best colonies. "My, oh my!" he concludes, "this will never do;" and so, perhaps, he will attempt to unite. He does not know, perhaps, that the strongest colonies—the very best that he or any one else may have—can compress themselves into a space almost as small as the double fist providing the weather is very cold.

Many a beginner makes the mistake of placing his hives on an exposed knoll where the cold prevailing winds can strike them. Apiaries should always be protected by being placed in an inclosure formed by a barn, out-buildings, fence, or shrubbery—any thing that will break the force of the wind.

In the spring of the year, one starting in bees reads what is said about spreading brood in order to get more brood. He undertakes to do work of this kind with insufficient knowledge of the requirements. The novice and most experienced bee-keepers should not undertake to disturb the positions of the combs in the early season. As a general thing it will do more harm than good.

Reading that bees should be stimulated in the spring by feeding, some beginners will feed when the weather is too cool or

when honey is coming in from fruit-bloom. No feeding should be practiced at either time.

Many beginners make the mistake, after having read all the bee-books, and keeping bees for a couple of years, of supposing that they "know it all" when they don't. Such people usually wander into the stage of inventing bee-hives or bee-feeders. They should understand that most veterans who know most about the business do not waste any time in trying to improve (?) on the basic principles put forth by father Langstroth. The fact is, nearly all the so-called improvements on the Langstroth frame and hive have been a step backward rather than forward. If our beginner friend clearly understands this, perhaps he will not get it into his head that he is going to revolutionize hives and appliances.

Another trouble with the beginner is that he is apt to be too impatient to get his crop of honey. He reads of some one's great success, or possibly hears his neighbor telling about putting on a super on such and such a day and taking off 32 full sections a little later, and he is perplexed because he can not get the same results. His bees seem to be working so steadily and so industriously that he can not understand why they don't go into the super on business intent; and at the very start he is apt to get discouraged, feeling that all the reading which he did has not prepared him for even this first emergency. He finds that the books recommend the use of "baits" in the supers to get the bees started, and he wonders whether a bait consists of a bunch of flowers, the sweet perfume of which would be attractive, or what. On reading further he finds that "baits" are unfinished sections containing some honey left over from the year before, or, possibly, merely sections with the comb pretty well drawn out. As he has just started, and has nothing left over from the year before, he wonders where he is going to get his bait. Meanwhile, the bees keep on flying merrily, but refuse to notice the tempting white sections above them with their starters of comb foundation.

WHY BEES DO NOT ENTER SUPERS.

As explained in the questions and answers under Heads of Grain in this issue, there are several reasons why bees do not go above for storing honey; and it may be any one of them or a combination of several. In the first place, it must be remembered that the tendency of the bees is to place honey as close as possible to the brood. It is much handier there, and far more convenient for winter. Estimates vary as to the actual amount of honey which bees consume themselves during a year; but assuming that it is 300 lbs., it is plain that the surplus honey—that is, that which is stored in the sections—forms only a relatively small percentage of the honey really brought into the hive. The super, then, is to the bees what the savings bank is to mankind—a storage-house for the surplus wealth accumulated during a period of prosperity. A colony that is not strong

and prosperous, therefore, is not capable of storing any great amount of surplus; and what they do store they prefer to place as near as possible to the brood in combs that the queen does not occupy, owing to the small number of nurse bees in the colony.

A colony with a failing queen rarely does much in the super; for if the queen lays less and less, the bees keep putting more honey in the cells left vacant by the hatching brood, and, finally, the queen has very little room to lay. Bees are creatures of habit; and when once they get started to storing honey in the brood-combs it is more difficult to get them to go to work above.

It is often the fault of the season that bees do not work in the supers; for unless the honey comes in with a rush so that the bees are able to store much more than they can possibly use they can not be induced to go into the sections. A beginner is often deceived in thinking that his bees are working hard, when, in reality, they are working only a little, or perhaps merely playing or loafing. During a good honey-flow, when a colony is working well, the heavily loaded bees have no time for play, and they drop down on to the alighting-board and immediately crawl into the hive in such numbers that it is impossible to count them. At such times the field bees forget every thing except work; and they are so busily engaged that they have no thought, except the one mad desire to bring in more and more. Under these conditions, unless they get sidetracked on to swarming there is generally very little difficulty in getting them into the super provided the brood-combs are pretty well filled with brood, so that there is not much room for the storage of surplus honey there.

THE SWARMING PROBLEM.

Some beginners are perplexed because their bees won't swarm, and others because they swarm too much. It is a question whether the beginner, the first year at least, should attempt any form of artificial increase; for the natural-swarming method is the best for one who lacks experience; and one swarm in a season is all that should be allowed. The books describe fully a number of good plans for preventing after-swarms—that is, all swarms after the first one, which is called the "prime" swarm.

GETTING HONEY AT THE EXPENSE OF COLONY LIFE.

After the honey-flow the most costly mistake that the beginner can make is to leave his colony or colonies, as the case may be, in poor condition for winter. A rather weak colony, composed mainly of worn-out bees, is not likely to live through the winter, no matter how securely the hive is protected, nor how well supplied with stores the combs are. If there is no fall honey-flow, of if the queen does not keep up brood-rearing long enough to insure a good force of young bees to go into winter quarters, some feeding is necessary; and here it is that the beginner often blunders. He is not well enough post-

ed on methods of feeding as given in the books, and perhaps his first difficulty occurs soon after beginning to feed. He is astonished to find that the bees become very irritable, and commence fighting, apparently, among themselves. The real situation is that the feed, instead of being supplied in the evening, is given in the morning; and during the excitement other bees from some other hive or from some bee-tree in the locality are attracted, and robbing is the result. Wholesale fighting begins, and many bees are killed. At this time they are so cross it is almost impossible to do any thing with them; and even dogs or horses that get in their way are apt to be stung. During a dearth of honey great care is necessary to prevent spilling any syrup or leaving any exposed sweets around to invite robbers.

DO NOT WINTER IN A CLOSED ROOM ABOVE GROUND.

If a colony is wintered in a place where the temperature changes very much, the bees must have an opening to the outside air. In other words, the inside of a barn or granary is not a fit place for a colony of bees in the winter unless the hive is placed close to the outer wall and an opening made for the alighting-board so that the bees may fly when the weather is suitable. In a cellar where the temperature does not change very much, seldom going below 40 degrees nor above 50 F., it is not necessary to have the outside entrance; but for best results the room should be darkened.

Colonies that are wintered on their summer stands out of doors need some protection where the temperature in winter goes down to zero; but the outer packing material must be protected from the rain, so that it may not soak through and then freeze. Old carpets, sacks, etc., thrown over a hive are worse than useless unless covered with a water-proof box which will keep the packing dry.

Summing up the whole question, we may say that all mistakes commonly made by beginners may be classed under two heads: First, failure to bring the colony into the right condition by the time the main honey-flow begins; second, failure to have the colony in the right condition for winter. Mistakes under the first head mean a loss of the crop; and those under the second mean the loss of the bees themselves. Both are costly, and both are preventable; and it is profitable for any bee-keeper to "go slow" in order to learn how to prevent such trouble before making a large increase in the attempt to produce larger and larger crops of honey.

A very common mistake of some *prospective* beginners is to imagine that the flowers in their back yard, consisting of a few roses, dahlias, sweet peas, etc., are going to yield enough honey to fill their hives. Such people should know that a single colony of bees requires acres of good bee forage in order to store any surplus. The ornamental flowers of the garden yield practically no nectar.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

LOUIS SCHOLL'S "Honey vs. Other Sweets," page 747, would be a fine thing to have copied in local papers.

C. A. NEAL, page 766, asks where he can buy rock candy. Sears, Roebuck & Co., Chicago, quote it at 65 cts. for 5 lbs.

D. W. MILLAR, p. 718, talks about European foul brood, and then says, "We do not consider this contagious." If it isn't contagious, it isn't European foul brood.

THANKS, Mr. Editor, for your invitation to eat pie with you, p. 746. At a banquet the talking comes usually after the feast. Let's reverse the order, and talk before cutting the pie.

A. W. YATES, those "little drops falling like rain," p. 717, were only water separated by the bees from the syrup. Don't you for a minute think bees will throw away good stuff they have once started with. [Right you are.—ED.]

REV. GEO. W. FULLER, *Review*, 339, reports that in York State, last year, he found lice on a number of bees, each bee having from one to eight lice. Heretofore the bee-house has never flourished in this country when brought across the sea.

DEVAUCHELLE, *L'Apiculteur*, 412, fully endorses the view expressed by you, Mr. Editor, page 712, about Abbe Pincot's enlarged bees. Abbe Pincot says they are 13mm. in length, while his unimproved bees are 12mm. Devauchelle's bees, reared in ordinary cells, are 14mm. long!

J. G. CREIGHTON wants to know the origin of the first golden queen. I think Doolittle obtained his from Italians by constant selection of the brightest-colored bees. I believe others have been obtained from Cyprian or other stock—perhaps with some crossing. [If we are not mistaken, friend Doolittle was not the first to bring out the golden Italians. We hope the man who did it will speak up.—ED.]

SOME have complained that foundation has dropped out when wedges were used. Stephen Anthony has overcome the difficulty by cutting each wedge in 3 pieces, using two of these pieces to each frame, starting about $\frac{3}{4}$ inch from each end.—*Review*, 345. [One difficulty with many is that the precaution to drive the wedge *below* the surface of the wood its *entire* length is not observed. The wedge should always go the full depth of the groove.—ED.]

DR. PHILLIPS had barrels of slumgum attacked by moths. Just what I should expect here if the barrels were warm enough and exposed enough. But we were not talking about slumgum on p. 582. To be sure, you asked a question on that page in which I think you had reference to brood-combs; and as that has not been answered,

I'll be liberal enough to answer it here. You asked, "Is it not true that, when these combs have been frozen, after a long severe winter, they will develop the moth-worm without ever going back into the hives again if left exposed in a building?" In this locality a brood-comb that has been exposed to a winter's freezing, if left standing in the apiary in a hive without any bees throughout the summer, will not be troubled with moths one time in a hundred. My assistant says she doesn't remember a single case. I can't say how it would be in a building. But neither slumgum nor brood-combs are involved. Let's see just what is the material for that pie. I said, in effect, p. 582, "I venture the guess that S. D. House never had an egg laid in sections after they were taken from the hive—at least that, I think, is the case here." So please bear in mind that neither slumgum nor brood-combs are to go into that pie—only sections. Now I'll tell you on what I base that guess. For years I have had each year hundreds if not thousands of sections, with combs partly or fully drawn out, that were stored in the shop. The moths could easily get them if they so desired. They were put there in the fall and stayed there generally till June, sometimes through the entire summer, and I do not remember ever to have seen a single one of those sections troubled with moth-worms, and I have good eyes too. If, now, my experience is entirely exceptional, and every one else, especially S. D. House, says such sections are destroyed by worms, you needn't mind cutting the pie. I'll eat the whole of it and look pleasant while eating it. [Are you not making a distinction, doctor, without a difference? For example, what is the difference between a comb in a brood-frame and a comb in a section? Both may or may not have had brood in them. But let us assume that there *is* a difference. If you will turn back to our original statement, page 547, Sept. 15, you will see that we were talking about the possibility of moth-millers laying eggs "in his combs or in his nice comb honey after either has been taken from the hive." In your comment on this, page 582, you said sections. The natural inference would be you included in your guess combs either in the sections or brood-frames. Now, then, doctor, if the moth-miller will attack or lay eggs in combs after they have been frozen or fumigated, why should she not lay eggs in combs built in sections?

As we look at it, your proposition or "guess" will be an unsafe one to let go unchallenged before the bee-keeping public. Don't you believe there is plenty of proof now to show that it would be wise to err on the safe side—at least so far as our instructions to the public are concerned. The individual, of course, can do as he pleases.—ED.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

Arthur C. Miller's article on page 664, Nov. 1, is interesting; but in some things he mentions, many of us will assume the "Missouri" attitude before being convinced. Certainly cotton for fuel does not act in the way friend Miller says when used with our bees. What a good thing that we have "locality" to fall back on! As to winter temperature within the hive, outside of the cluster, being within one or two degrees the same as outside the hive, is a question, but he may be right. If such is the case, one would wonder why bees winter so much better with abundance of packing than they do in single-walled hives, in our cold climate.

If all goes well I intend to test the matter myself this coming winter, during zero weather, as some of my hives are so constructed that a thermometer can be taken from the inside of the hive without unduly disturbing the cluster.

The advisability of compensation for colonies destroyed by inspectors is a question that comes up every once in a while when the foul-brood laws are under discussion. The following, from the *British Bee Journal*, written by that well-known author, D. M. Macdonald, hits the nail fairly on the head, according to my view of the question: "I have always been an opponent of compensation in any form. Of what value, I ask, is a putrid mass of vile-smelling matter? The most rabid must admit that it is represented by a cipher. So also must be a collection of combs fast hastening to this unenviable condition. Why, the party who eradicates disease or the cause thereof is the one who should be compensated."

The foregoing may be a bit too radical, so far as heading off European foul brood is concerned, because in some cases it might be economy to the state to compensate, where slightly infected colonies were destroyed, to prevent the spread of the disease; yet, in the main, Mr. Macdonald's views are reasonable, as colonies rotten with foul brood represent no money value outside of the wax that is in the combs. On the contrary, they are apt to be even worse than useless, and a menace to the welfare, not only of the owner, but his neighbors as well.

The Ontario convention was well attended, and in every way a success. From over the line we had the different ones mentioned in a former issue, as well as Mr. Geo. B. Howe, of Black River, N. Y. The convention was strictly a *business* one, and it was a question in the mind of some if this feature was not overdone a bit. While we may argue (as the writer has often done) that details of management, etc., should be discussed in local conventions, yet the fact seemed apparent at our late convention that many come to get information who are not as yet interested in freight rates, coopera-

tion, and a host of other questions that the more seasoned bee-keepers no doubt rightly think should be paramount. This fact was made clear by the lively discussion that followed any subject or question that would occasionally crop up concerning actual management connected with the apiary. To my mind it seems clear that we must be careful in future conventions, and not jump too quickly from one extreme to another, else there be danger of cutting out the attendance and interest at our meetings. This should never be allowed, as there is no question but that the social side of such gatherings must be taken into consideration.

It is an old saying, "All things come to those who wait;" but this fall, in our particular vicinity, the man who waited for his bees to have a flight before putting them in the cellar "got left" unless he did the work early in November.

At the east yard the bees had a good flight Nov. 6, and the 280 colonies were put inside on the 8th and 9th. Here in York Co. we had only 40 to go inside; and as the cellar is not of the best, we like to wait till late in November before putting the bees inside. On the 11th they had a partial flight; and on that day, wherever bees were outdoors, both east and west of us, they had a grand flight, as the day was warm and clear. Here with us it was quite warm but very cloudy all day. Little things like this show how it is possible for much different results in beekeeping in localities only a few miles away from each other.

However, we waited in vain for a warm day before putting these 40 colonies in the cellar; and about Dec. 1, when the thermometer showed nearly zero, the bees were put inside without having had the flight we were hoping for. After being in the cellar for less than a week the weather turned warm, and has been warm for over a week now; and at this date, Dec. 11, all the frost is out of the ground and some plowing has been done. One day the bees outside flew nicely, and only the thought of the *heavy* hives in the cellar prevented us from carrying out those 40 for a flight. This carrying out colonies in the winter for a flight sounds all right on paper, but is a different thing in practice when the hives weigh 70 lbs. or more each, unless you get the "other fellow" to do the work. When my son and I started to carry them in we had planned carrying them out on the first warm day; but by the time we had them in the cellar we had *changed* our minds, for we felt that *two* operations of that kind are enough for a lot of bees in one season. All things considered, I am of the opinion that, for our latitude, outdoor wintering is the best, and this opinion I note is being shared more fully by many men who are in the business extensively.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

BEE INSPECTION DURING 1911.

Full reports have not been received from all counties; but more than twelve thousand colonies were inspected, of which something in excess of 10 per cent were found diseased. The expense to the counties and the State has been about \$2000.

THE HONEY SITUATION.

Colorado at the present time has been about cleaned up on comb honey, but we are well supplied with extracted. The latter is selling now for $7\frac{1}{2}$ to 9 cts. in 60-lb. square cans. Comb honey sells locally in small lots at about \$3.00 per case of 24 sections for No. 1 grades. The price tends to go above this figure, as the smaller beekeepers with but a few cases of honey are getting pretty well cleaned up.

BANKING HIVES WITH DIRT.

Some of the bee-men near Rocky Ford are banking dirt up around three sides of the hives, and they claim to have good success. The Arkansas Valley country is very dry in winter, and this method might succeed there when it would fail almost anywhere else. The objections to this method are that the hives would tend to be dampened by the dirt, and then the hives and bottoms would be more subject to decay. Otherwise this wintering method might work all right.

A STARTERING-MACHINE.

Mr. D. S. Jenkins, of Las Animas, is the inventor of a machine which will cut, and in one operation insert in a section honey-box, a starter of any desired size. The Las Animas bee-keepers in that vicinity who have used it have discarded every other make, whether a combined machine or not. His is simplicity itself, and does not cost 25 cents for material. Mr. Jenkins has made and sold several for \$2.50 each. He uses an auto in his bee-work, and this, too, is largely of his own manufacture. He says one has to become accustomed to the machine for startering sections before being able to use it successfully.

TALKS ON BEES AT THE PUBLIC SCHOOLS.

The Colorado Agricultural College is conducting a series of farmers' institutes in the Arkansas Valley, Colorado. The writer is giving talks on bee management and foul brood at the institutes, and on the habits of the honey-bee, before some of the high schools and public schools. Courses in agriculture and domestic science are being carried on in many of the schools, and these classes are especially interested in the honey-bee and its product. In some places the whole school is dismissed while our corps of speakers are in town, and in other places we go to the schools and speak there. Institutes are being held at Wiley, Lamar,

Las Animas, Cheraw, Rocky Ford, Swink, La Junta, Fowler, Boone, Fountain, Sugar City, and several other towns.

WHAT OF THE NEW YEAR?

Some time ago my wife was looking through the bee-journals, hunting for her husband's bee material and remarks thereon by the other correspondents, when she said, "You bee writers don't do much else than nod back and forth at each other in your departments."

It struck me as being rather apt, even if my wife did say it. The reason, no doubt, is principally because of lack of better material. Each one of us who tries to keep his department going should have an experiment station in operation to furnish actual results as a basis for his results. It would do away with a lot of guesswork and mere ideas on certain subjects. But as we can not do this except as our own apiaries are experiment stations, we shall have to keep right on in the way we are going, with a constant endeavor to improve our methods and the material we furnish.

COLORADO BEE INSPECTION IN 1912.

Plans are being made to do thorough inspection in every county in Colorado where bees are kept if the county commissioners will set aside enough money to pay a county deputy inspector to work under the direction of the State Entomologist's office. Most of the counties are coöperating in this way; and if all will help, great good can be done. The bee-keepers in each county not having a local inspector should call a meeting of the bee-men at some time when the commissioners are in session, and appoint a committee to see the commissioners or else have the bee-keepers see them in a body. The writer, if notified, will gladly meet with the bee-men and take up the matter with the commissioners, explaining the way the new law operates, and the means of getting the most benefit from it. It is important to get this started soon, as the commissioners want to know some time in advance as to the expenses they will be called upon to vote for different kinds of county work, and the bee-keepers should not be at the tail end of the appropriations. The State funds are not sufficient to keep me in the field more than six or seven months; and when there are a dozen or more county inspectors at work the office work takes a great deal of time. However, I shall be able to put in one or two weeks in each county, working with the county deputy inspectors.

Let us all make an extra effort to get foul brood under control in Colorado. It can be done if we make an extra effort. In the future our work will consist in seeing that cleaning up is done. Inspection avails nothing if treatment is not given promptly.

Conversations with Doolittle

At Borodino, New York

THE APIARIST'S USE FOR AN AUTOMOBILE.

"Did you see the editor's request, page 709, December 1, that those having automobiles tell something of their experience with them in bee-keeping for the benefit of the GLEANINGS family? If I am correct, you were one of the pioneers in using the auto in connection with our industry; and as I am thinking of purchasing one I should be pleased to have you tell us about it."

"I bought my first automobile in June, 1903—a 3½-horse-power Pierce motorette. Automobiles were then in their infancy; yet this little machine could climb any of our hills, carrying a load of 400 to 500 pounds. As it was not intended for any thing but carrying two persons, I made a rack to fit on behind the seat; and with this, and the seat Mrs. D. occupied when both of us went, I could load on 350 lbs. of honey, or as many hives or supers as would stay on when going and coming to or from the out-apiary, five miles away. As I then weighed from 260 to 270 lbs., it will be seen what a power there was in that little 3½-horse-power motor. In September, 1905, I sold this motorette, considering it too small for my use with the bees; and as I was so well pleased with the material and workmanship I bought another Pierce car, this having a folding seat in front. This was styled an 8-horse-power Stanhope; but to show its power and capacity I will say that I have carried four grown persons and six children in it, besides myself, at Sunday-school picnics, and, at other times, from 600 to 800 lbs. of crated section honey, to our railroad four miles away, over a hilly country, when shipping my honey to the New York market. By opening up the front seat I could pile on nearly as many hives and supers as could be drawn by wagon, and take them to and from the out-apiary in less than half the time required to traverse the distance with a horse. Those having GLEANINGS for August 1, 1906, can find a picture of me with my load of supers just arriving from the out-apiary.

"But the great beauty of the automobile for the bee-keeper consists in the driver having perfect control in all of the essentials of apiary work. With my auto I can drive right into the bee-yard; and with the distance I have between the rows of hives, the auto can be brought right up to the back side of any hive; heavy supers, freed from bees by the use of the bee-escapes, set right from the hives to the auto, with a carrying swinging motion, with scarcely a bit of the lifting needed when loading on a wagon, as the auto is of about the same height as the supers on the hive. The motor may meanwhile be left running slowly, so that moving on to the next hive is only a matter of touching a lever; and in a very few minutes the load is on, the hives closed up in good shape, and we are off, without a sting or any worry from the bees whatever.

"Then the driver of this load of precious sweets is always master of the situation, if he is a capable driver, no matter what he meets on the way home. Once a hog was the cause of frightening my horse, and again a traction engine, so that it was only by a hair's breadth that the load of honey was not demolished. The auto never shies nor gets scared, no matter how many ghosts jump out in unexpected places.

"Another thing which really gives me lots of comfort is, the flies never bite and torment the auto, as they are sure to a horse during the season for moving honey. This season is always in fly time; and to control the horse when flies are very troublesome is not always the easiest thing to do where the road is very rough and stony; and a horse often gets its tail over the lines in the fight to relieve itself from these tormentors. It is needless to say that the auto overcomes all of these many difficulties.

"The auto can be made to go at snail's pace where the load requires the most careful driving, and, where good, a fifteen-miles-an-hour jog is just as safe and reasonable as the former. Thus a load can be moved with an auto, without tying or binding when moving, which is always a safe precaution with a horse and wagon.

"Another thing about the auto which pleases me nearly as much as does driving it right into the middle of the apiary, without fear of stings or the unhitching of horses, is this: After finding what this auto would do I built an auto store-room, honey-room, and small workshop combined, with movable partitions, painting the same a dark color so as to ripen the honey when stored therein through the heat brought about by the absorption of the rays of the sun. Now, instead of having to carry the honey from the wagon to the honey-room, the auto load of honey is run right into the honey-room. This saves a whole lot of lugging which was necessary with each load when returning with the horse-drawn wagon. Again, when marketing with horse-power the crates of honey must be carried from the honey-room to the wagon standing outside, and the load, when completed, securely tied or bound on, owing to the smooth surface of the nicely polished cases. The auto is backed right into the honey-room, between the piles of nicely crated honey, when, with the swinging motion, the honey is conveyed from these piles into the auto; and when the load is on, the driver pulls the lever, and he with the load moves right out from the honey-room to the railroad station or car conveying it to where it is consigned.

"To save any tying when carrying polished cases of honey to market, I have properly shaped pieces of lumber put in the auto where needed, to give a very slight tip or pitch toward the center, so that all crates will gravitate toward the middle of the load, which is even better than tying."

General Correspondence

WHAT A LIFETIME OF EXPERIENCE HAS TAUGHT ME.

Some Advice for the Especial Benefit of the Beginner.

BY ISAAC F. TILLINGHAST.

Born on the even half-century mark, January, 1850, it is now over sixty years since I first opened my eyes to the beauties of this diversified world, and began the study of nature. Among my earliest recollections is a row of Week's patent hives. My father kept them in his front yard suspended between horizontal pieces of scantling attached to posts, the lower end of each hive being cut on a slant, and its bottom-board suspended at each corner by a wire hook, the idea being to facilitate the removal of litter of all kinds, and to prevent the bee-moth from gaining entrance. At the top was a surplus-honey chamber, about one-fourth the size of the brood-chamber, opening at the side, and furnished with two square surplus boxes, each having glass ends in front, and four communicating-holes through which the bees entered from below. These boxes held about ten pounds each of comb honey; and whenever a colony filled them during the season, it was considered a record or maximum yield.

As soon as old enough I began to take charge of the bees, and to study their habits. I bought and read the works of Quinby, Kidder, King, Langstroth, and others, and subscribed for the *American Bee Journal*, for which I became a frequent contributor in the early seventies. Quite recently I purchased a copy of Dr. Miller's "Forty Years Among the Bees," and was surprised to note that he gives me the credit of being one of his early teachers. In those days I thought I knew it about all; but a half-century has passed, and I am still learning.

Being fully convinced of the superiority of the Italian race of bees, I bought my first queen of father Langstroth, successfully introduced her, and kept her for several years. I closely read the exploits and achievements of "Novice," in the *Bee Journal*, and well remember the first issues of *GLEANINGS*. Yet bee-keeping was never my main business. For twenty-five years I was editor and publisher of *Seedtime and Harvest*, in which I maintained an apiarian department, conducted by James Heddon, yet gave most of my time and attention to growing and selling seed.

During the last ten years I have traveled quite extensively throughout the Union, and have visited many of the most noted bee-keepers. At the same time, at home I have kept more bees and produced much more honey than I ever did in my younger days.

WHY KEEP BEES?

First, because the honey-bee is one of the

cogs in the wonderful mechanism of nature, and is as necessary to the successful production of fruits as are the birds and showers. Nectar was placed in the flower by the great Designer to attract the bee, for the purpose of carrying the pollen from the stamens of one blossom to the pistils of another, in order to cross-fertilize them and render them fruitful. It is a mutual arrangement. The bee is for the flower as much as the flower is for the bee; and the very life and existence of many kinds of fruits, vegetables, and other plants, depend as much upon the bee as does the life of the bee upon the flowers. The bee-keeper is, therefore, a public benefactor.

Secondly, there is pleasure and profit in bee-keeping if conducted by modern methods; and as a hobby or diversion for business men I would place a few colonies of bees far in advance of chicken-raising or any other outdoor home industry.

I believe that there are few localities where many more bees could not be profitably kept; and the amount of honey that is continually going to waste all over this country, if known, would fairly astonish the world. Indeed, it could easily be proven that the honey-flows, as they come along from different sources, are far more abundant, yet perhaps shorter in duration, than most people suppose; and a knowledge of this fact, coupled with ability and proper facilities for caring for them at the proper time, constitutes the greatest factor of profit on the part of the up-to-date bee-keeper.

It is my purpose to show how to manage bees so as to secure the proper share of this great waste. In proof of the assertion just made, that in few if any localities are there bees enough to secure all the honey that nature so lavishly supplies, let me cite the case of Mr. E. W. Alexander, of Schoharie Co., New York, who, for several years before his death, kept an average of 750 colonies of bees in one yard, all on about one acre of land. By knowing the nature of his field, and about when to expect the honey-flows from different sources (buckwheat being his most important one), and by seeing that each colony was supplied with empty combs at the critical moment, when needed for storage, he succeeded in securing an average of over one hundred pounds of extracted honey per colony, the aggregate of which would amount to over 37 tons. Now, if it was possible for this great amount to be gathered from within the area of a circle covered by the flight of one bee, whatever distance that may have been, how much do you suppose may go to waste, for the want of bees to gather it, in thousands of other localities where not even one hundred pounds is secured and saved within an equal area? Are not the possibilities great enough to warrant a study of this subject, with a view to determining what may or may not be accomplished along this line in your lo-

cality, or in selecting some other locality where you may profit by the knowledge you may gain?

Why you should *not* keep bees may now be considered in order to ascertain whether the objections can match or overbalance my affirmative reasons. First, no doubt you will admit that a fear of stings is your greatest objection; and, secondly, perhaps you imagine that some large trees surrounding your premises should be selected by the bees as alighting-places, thus causing you too much trouble in hiving swarms. Let me assure you that both of these objections can be almost entirely overcome.

By the use of a little smoke, the crossnest and most irritable colony may be made gentle. A whiff of smoke blown into the hive frightens the inmates, and they at once proceed to fill themselves with honey. If there is no unsealed honey readily attainable, sprinkle them liberally with sweetened water, which they will take instead, and, like a man after dinner, they are invariably better-natured when filled than when empty. And then when obliged to open a hive, a pair of gloves and a bee-veil over the face will prevent your being made a target by some mischievous scout. Another curious fact is that, after you have been stung a few times, your system becomes inoculated to the poison, and you rarely observe any unpleasant effects, such as the closed eye that the tenderfoot may be likely to suffer.

In many localities there are not bees enough to fructify properly the blossoms of fruits and vegetables. Most bee-keepers now prefer to get their increase by artificial divisions rather than by natural swarming, as thus it may be done at one's option and convenience, and most of the risk of absconding swarms may be eliminated. It is only necessary to keep the wings of the queens clipped so they can not fly, and you will have the whole colony under perfect control. Should they attempt to swarm, you may make them literally hive themselves instead of alighting in some tall tree.

To accomplish this, as soon as they are in the air remove to a short distance the hive from which they issued, and place an empty one in its stead. You will find the old queen on the ground in front, vainly endeavoring to accompany them. Secure her in a cage and wait till the swarming bees have missed her. They will probably begin alighting in a cluster; but finding that not all is well with them they will soon proceed to return whence they came, and will thus be made to enter the new hive. Now liberate the queen at the entrance; see that she goes in with them; and as soon as all are in, move them to any desired situation, and place the old hive on its original stand.

When bees prepare to swarm they make provision for themselves for the journey by filling their bodies with honey; and when in that condition, as above stated, they may usually be handled with impunity. In early spring, when examining our colonies we clip the right wing of each queen if she

is not already clipped. The next year we clip the left wing, and the third year both wings. This marks their age up to three years, which is as long as or longer than it is usually profitable to keep them, and it prevents the possibility of swarms absconding to the woods.

WHERE BEES MAY BE PROFITABLY KEPT.

There are few locations where bees may not be kept either in country, village, or city, as they will go three or four miles if necessary for food. In the writer's locality they start in early spring on the maples, the soft and hard varieties following in succession, and lasting two or three weeks. Then follow dandelion, fruit-blossoms, red and black raspberries, locust, white clover, basswood, sumach, milkweed, catnip, Canada thistle, goldenrod, buckwheat, wild aster, and a score of wild flowers whose names are not familiar, thus covering the season. During the height of flow from each of these sources the secretion of nectar is very abundant but of short duration. To secure it, the flower must be visited many times in a day, and an immense number of bees are required to keep it from evaporating and going to waste.

Yet while it is true that in only a few localities are there bees enough to secure and save more than a fraction of what nature so bountifully supplies while these flows are on, there are often long intervals between when there is little or none to be had, so I believe it would pay most bee-keepers to consider whether nature may not be aided by planting something which will fill up these interstices and keep the bees more constantly employed, and, at the same time, produce a crop which will pay its cost besides the honey.

For this purpose I would recommend buckwheat, raspberries, alsike clover, mustard, and rape, for this section. Melilotus, or sweet clover, where it has started, reseeds itself and spreads naturally, and is, without doubt, one of the very best honey-producing plants known.

The chief value of sweet clover as a honey-plant comes from its habit of long duration of bloom, so it is sure to bridge over the gaps left in the succession between many other plants named. It is a great soil-improver, and it has been found that it prepares the way for alfalfa by inoculating the soil with the bacteria necessary for its growth. On this account the demand for its seed is increasing, which will no doubt make it a paying crop without considering its value as a honey-producer.

HOW TO PROVIDE PLENTY OF ROOM AND PREVENT NATURAL SWARMING.

The most important secret in bee-keeping is to see that strong colonies are well supplied with empty combs, so that the bees may store quickly while the abundant flow lasts. This is accomplished by the following process:

As early in spring as we can get the queen to fill the hive with brood we remove all the combs but one, on which the queen must be

left, and put in their places either empty combs or frames of comb foundation. Then we put on a queen-excluding honey-board, and above it another body, uniform in size, in which all the removed combs, together with the brood and adhering bees, are placed. A $\frac{3}{4}$ -inch entrance and exit hole should be made in the upper part; for as fast as these combs become empty by hatching brood, the bees will proceed to fill them with honey, and they soon learn to use this upper entrance and save much time by its use. Besides, it gives ventilation and allows the expulsion of drones, which otherwise might clog the excluder, and smother the inmates of the upper story.

The queen being confined to the lower story she has plenty of room to go on with her egg-laying, and she will soon have it filled with brood, thus making faster increase in numbers and strength than otherwise would have been possible, and the increased room given just at this time will usually dispel any intention or tendency to swarm.

The main advantage given by this system lies in the fact that the bees will invariably proceed to store quicker and more abundantly in this upper story than they can be induced to do in supers of sections arranged for comb honey. But in this case, of course, this honey must be removed by extracting, and this explains why much more extracted honey may be produced than sections of comb honey.

This also affords an excellent opportunity to produce some young queens. When the division is made, place over the excluder, for twenty-four hours, a complete cut-off, consisting of a sheet of wire netting, or even a cloth or heavy paper. This renders the bees above actually queenless for this short period, which causes them to start queen-cells freely, which they will continue to care for after the cut-off is removed, and these may be cut out and caged, or given to other colonies or to nuclei on the tenth day, and without any loss of time on the part of the bees or breeding queen.

Do this only with the best breeders, and put a nice sealed cell in a cell-protector, in place of the black, hybrid, or old and questionable queens, and you will requeen with as little expense and waste of time as is possible. These young queens are always accepted whenever they hatch within a hive, and you are saved the trouble and risk of introducing queens. Then, even if some of these should mate with black drones, if bred from a pure-blooded mother their drone progeny will be pure next year, when the operation may be repeated with chances of mismating greatly diminished. Young vigorous queens, raised from selected mothers, are a strong factor to success in bee-keeping.

The process described above has also proved with us a complete cure for European foul brood, the infected combs being cleaned out and filled with honey, and the queen compelled to use only new clean combs for brood purposes.

Factoryville, Pa.

THE SWARMING IMPULSE NOT CAUSED BY ANY ONE CONDITION.

BY R. F. HOLTERMANN.

In my estimation the swarming problem will not have much light thrown on it by efforts to confine the causes under one head. I have no doubt that the control of swarming, or, rather, the prevention of the desire for swarming, in powerful colonies, without reducing the numerical strength, either at the moment of or during the future of the honey-flow, is the capstone of successful bee-keeping.

The successful solution of this problem makes it possible to keep more colonies, to have them scattered, to take a honey crop with less labor and anxiety, and to get a larger surplus crop (if there is a surplus) than can be obtained through swarming. From this I except a tropical country with a honey-flow the year round; but I do not except in our own country an average year with a light and dark honey-flow no further apart than clover and buckwheat. In many localities keeping down swarming makes possible more successful and uniform wintering as well as, in some seasons, the difference between a honey crop and a failure.

VARIETIES OF BEES.

With the black or German bees, Italians, Carniolan, Cyprians, and Holy Land bees there is a marked difference as to disposition to swarm (I will not include Caucasians, as I am acquainted with them only by hearsay and sight. I can not find that they have any superiority over Carniolans. Even a breeder of Caucasians privately advised me to stick to the Carniolans). Of all the varieties mentioned, the Holy Land and Cyprian bees are the most prone to swarm. I know of what I write, for I spent two years with D. A. Jones, of Beeton, Ontario, when these bees were first imported into America. The Italians, as a variety, are, perhaps, on the whole the least inclined to swarm. But the bees the least apt to swarm are not necessarily the best for the bee-keeper who can control swarming.

CONTRACTED ROOM.

My first attempt to keep Carniolan bees was an overwhelming failure. It was in the days of eight-frame Langstroth hives, and with the contraction of the brood-chamber for comb honey, which is something Carniolans will not stand, I found that it was useless to attempt to keep these bees for profit under such conditions.

SMALL ENTRANCES.

I have had a colony of Carniolan bees swarm when they had only about half filled a twelve-frame Langstroth brood-chamber having eight combs, and two of these yet empty, and they were headed by a previous autumn's Carniolan queen. A careful study of the conditions did not reveal supersedure nor any thing else, except that we had hot weather while the bees were packed, and they had a very small entrance on account of the fact that the colony had been only a

nucleus the preceding fall. By dear experience I have learned that Carniolan stocks are exceedingly liable to get the swarming impulse during fruit bloom if they do not get plenty of ventilation; and in the past some of my Carniolans have had the swarming impulse before I thought they were really crowded enough to need supers and large entrances, especially in view of the future break in the flow. Italians, hybrids, and blacks, equally strong, did not get the swarming impulse under like conditions. Excess of nurse bees could not be the cause of swarming at this time, for it would be unreasonable to suppose that one colony has any more young bees in proportion to brood than the other. In fact, during the building-up process the proportion of brood to bees is on the increase; and with a good Carniolan queen there is all the brood the bees can look after.

WHEN THE DANGER.

My experience fully supports the following: The time for the greatest danger of swarming with strong colonies is during the light honey-flows before the heavy surplus flow sets in, and during idle time between heavier flows.

When the bees are about ready for super room is a most critical time. I put supers on the hives too early rather than too late; and as I generally keep the bees packed in their winter cases until the clover begins to yield nectar I run no danger of chilling brood.

If during a good honey-flow the bees enter the supers with a rush, I find but little trouble, under right management, until the super room begins to be crowded *for the process of ripening* the stores they gather from day to day. I do not recollect ever having a twelve-frame Langstroth hive with three, four, or five supers on top of it wanting to swarm. We are told that in tropical countries during the heavy flow the bees abandon swarming; and when the light flow follows they get the swarming impulse. I believe it is much the same under proper management in more northerly localities.

The trouble does not lie solely in the lack of super room. Neither is it a lack of ventilation alone, nor in hive conditions alone, as then all the varieties of bees and all colonies would swarm under certain conditions. This much is plain—that, within recent years, there are those who have learned so to manage that the bees will bend their energies in the direction of gathering honey rather than in swarming.

Brantford, Ont., Can.

DISTURBING BEES DURING WINTER.

Was it a Costly Mistake?

BY G. T. WILLIS.

Robert B. Mc'ain, Nov. 15, page 685, says regarding the advisability of opening hives in the winter time in order to ascertain the condition of the food supply, "The proba-

bility is that the bees will be injured rather than helped by disturbing their household affairs." Now let me emphasize this to the inexperienced bee-keepers. Don't allow yourself to be so overcome with curiosity that you can't leave the bees alone. If you do, you will never forget it. Josh Billings, the pithy writer of years ago, uttered this wise and truthful sentence: "Experience teaches a good school, but the tuition is rather high." Well, I have attended that school myself, and I paid the tuition in full. For fear that some one may be tempted to commit a similar blunder I will give my experience of twenty-seven years ago.

In the fall of 1884 my 38 colonies, in ten-frame hives of my own make, were all in fine condition for winter, as there were plenty of bees and stores. The hives were so made that there was permanent packing at each end; and when preparing them for winter I took out two or three frames and put a follower on each side and packed with straw, both at the sides and on top of the frames, which I considered an ideal condition for wintering. Old residents remember that, during the winter of 1884, an unusual amount of snow fell, and it was cold from the second week in September till the last of March, so that the bees were buried under the snow most of the time. As I was engaged in the work of the ministry I was away from home much of the winter; but on returning the last of February I remained a few days. The 28th of February being a bright and warm day I did the very foolish thing of opening hives containing those 38 colonies to satisfy my anxiety as to whether they had stores sufficient to last them until spring. Now for the sad experience that cost me so dearly. When I returned and examined them early in April, I had only seven colonies left. I have never, in the twenty-seven years since, allowed myself to be tempted to inspect a colony in winter.

I may have something to say at some future time as to how I succeeded the following season in retrieving my loss.

Hoopeston, Ill.

[We believe our correspondent is wrong in supposing that the opening-up of his hives on the 28th of February, a "bright and warm day," was the cause of the heavy mortality among his bees. While it is certainly bad policy to open up outdoor colonies on cold days, causing the clusters to expand beyond the point where they can keep warm, it seldom does any harm when the air is warm enough so the bees can fly. If, however, the colonies have been well supplied with stores during the previous fall, it is advisable for beginners, at least, to let the bees entirely alone. However, if there is any doubt about the amount of stores, we recommend opening up the hives when the weather is warm enough so the bees can fly, and then put rock candy or a comb of sealed stores on top of the frames after very gently lifting the cover and the packing, and replacing the same.—Ed.]

EXAMINING A COLONY OF BEES.

BY F. DUNDAS TODD.

[However familiar the experienced bee-keeper may be with the details as told in this article, we feel sure that the points mentioned will prove of interest and value to the beginner, for whose benefit they were especially intended.—ED.]

It is always good policy for the beginner in bee-keeping to see an experienced hand manipulate the frames of a hive before he tackles the job himself, because it will give him confidence, helping to overcome the instinctive dread of stings. He will learn by observation that, when handled skillfully (and this word in the present connection really means *gently*), most bees remain quietly on the frames, and are no more dangerous than so many flies. Worker bees are constituted of high nervous tension, and will not tolerate with equanimity a sudden jar or shock of any kind; therefore all movements must be easy and gentle if one desires them to be in good humor. In his dread of stings the novice is apt to rush things and be jerky in his movements, and so bring about the very condition he least desires—an irritated, pugnacious community. It is not wise to depend upon smoke to quell an insurrection. The true rulership consists in avoiding the beginning of strife.

Here are a few simple rules that are worth following while working with bees:

1. Never stand in front of the hive entrance, for that is the bee's roadway. You will soon get notice to move; and if you fail to comply, stinging will be attempted.

2. Never put a frame nor any other part of a hive in front of the entrance.

3. Leave all frames in the same order in the hive as you found them, and turned the same way.

4. Make every movement slowly and deliberately, never dropping a frame into position, but placing it exactly where it belongs.

5. Avoid, if possible, killing a single bee; for among communists, whether human or not, an injury to one is an injury to all, and must be avenged. Kentucky feuds are a lingering remnant of the Scotch clan spirit among the descendants of the Highland exiles of the eighteenth century.

It is possible you do not have a neighbor to give you the first lesson, so I will invite you to come to my yard and examine with me a hive; and since you can not be with me in reality I will bring my camera into play and illustrate each feature that may be worthy of notice.

First, we get the smoker agoing, then put on our bee-suits. All being ready we stand alongside the hive, which will appear as in Fig. 1—that is, if it is an eight-frame Langstroth, which this happens to be. Its cover is rather different in design from those in general use; but it is popular on this side of the Pacific coast where we have long-continued winter rains, and only short spells of severely cold weather. Notice that the bee-keeper is standing on the sunny side of the

hive so that, when he comes to examine the frames closely, the sunlight will strike into the cells.

We will begin by removing the cover, see Fig. 2; and when we do so we find a piece of cloth underneath. This is known as the quilt, and is usually made of table oil-cloth with the glossy side down, as the bees have a habit of carrying out any fabric they can tear to pieces. The purpose of this cloth is to retain the heat of the hive, for reasons that will be seen later.

The cover of your hive is probably a flat one; and when you try to take it off you may find it fastened down tight. Very likely the bees have cemented it all round to the body with propolis—a kind of glue—and we must break the bond. So we force the hive-tool under one corner of the cover and give it a twist; or, press your left hand firmly upon the center of the cover, and at the same time pull up one corner with the right.

The cover is set to one side; then we take the quilt by one corner and peel it off. We now see the tops of the frames, from between which, if it be late spring or summer, thousands of bees are appearing and covering the upper part. Fig. 3 shows how the hive will look at this stage.

Bees are much like people. Some are good-tempered and some are not. Any one keeping bees as a hobby is foolish to have any of the vicious kind, more especially if he is surrounded by near neighbors. The best working bees in my own yard are so gentle that I rarely have to use smoke on them. But I have had colonies so vicious that they attacked any living thing coming within ten yards. The queens at the head of these colonies soon ceased to exist, being replaced by others from a less pugnacious strain. So when we remove the quilt we have a chance to learn something about the temper of the insects in this particular hive; for if they are good they will stay quietly on the combs; but if bad they will run around and fly off—some at us, and some to the hive entrance. Now is the time to use smoke to keep them in subjection. How much, will depend on circumstances; but never more than is necessary. With the average hive it is usually enough to give a few puffs across the frames, never down through them, as the quilt is being peeled off. In the case of a colony known to be irritable, it is usually necessary to give a puff or two into the hive-entrance before removing the cover. In spring and autumn, when the colonies are weak in numbers, it is often unnecessary to use smoke.

In the eight-frame hive we are examining, the inside width is 12½ inches; but the frames occupy only 11 inches of that, so there is a free space of over one inch on one side of the frames. Part of this is filled by a "follower" made of a thin board. Occasionally this is called a division-board. In use it is pushed tight against the last frame.

Our first work is to remove the follower that occupies the space between the frames

and the side of the hive. Very probably it will be glued to the frames with propolis, so we insert the hive-tool between the frame and follower, pushing aside the bees gently if in the way; then with easy pressure we pry the board apart from the frame, first at one end then at the other. The follower is now removed from the hive and set to one side, or at the end of the hive. We can now reach the first frame, which is apt to be clear of bees, excepting from May to September. As before, we break the glue adhesion with the hive-tool, then lift the frame with both hands, one at each end-bar. Should bees be clustered where fingers will grasp the top-bar, gently puff a little smoke on them and they will quickly scurry away. Remember, it is little tricks like these that make hive manipulation easy and prevent the bees becoming ill-tempered. Lift the frame straight up, with your back to the sun, and proceed to examine it. Fig. 4 shows the operation. (The editor will, perhaps, permit me to explain here for the benefit of Dr. Miller, who may in this and following illustrations see a chance to catch hold of my short hair, that in making these photographs I had to choose be-



FIG. 1. — Ready to begin work at hive No. 1.



FIG. 2.—Removing the cover.

tween good photography and good bee-keeping. The former called for lighting, as is shown in the preceding pictures; but I felt that, with the others, the lighting ought to be in harmony with the instruction that was being given. Even after this explanation I feel the good doctor will trip me up.)

The inside of the frame, we find, is filled with wax comb, which is made up of a great number of cells—at least 3000 on each side. In these cells is stored the food supply of the colony. In them are laid the eggs from which develop the young bees, the whole time from infancy to maturity being spent in such narrow confines. Then in the cold days of winter, when all activity in the hive practically ceases, when the individual members huddle close together to keep each other warm, each empty cell may be filled with an insect, so that no space shall be unoccupied. The interior of a hive is a wonderful utilization of a limited area, down to the minutest detail; and it is hard for most people to realize that, in a capacity of about two cubic feet, as many as 50,000 bees will carry on all

the activities of their life, for here is at once a pantry, kitchen, incubator, nursery, living-room, and bedroom for them all.

But let us investigate our comb a little more. First we shall probably notice that there are at least two different sizes of cells—one series in the upper part of the frame, running about five to the inch; another kind, generally in the lower half of the comb, that are a little larger, running about four to the inch. In the smaller cells the worker bees are raised; in the larger ones the drones, which are the males, spend their days of infancy. Both kinds of cells are used when necessary as storage for food. In a well-managed hive the worker cells vastly predominate; in fact, all good bee-keepers strive to keep the drone-cells to the lowest possible number. Drones are essential to the welfare of the apiary; but an unlimited quantity of them means a waste of valuable space and food, for they are consumers only. Fig. 5 shows the two kinds of cells side by side.

We will now proceed to examine the next frame; but first we will dispose of this one by setting it on the ground, leaning it against the side of the hive. As before, we will break the gluing between the frames. Since it is May it is probable the colony is strong enough to cover six frames, so that this one may have thousands of bees on both sides, while the weight suggests that the cells contain something. They do, for the center of the comb is filled with young bees in all stages—eggs, larvæ, and sealed brood. These are surrounded by a band of



FIG. 4.—Lifting out the first comb.

pollen, about an inch or two wide, while outside of that, especially at the top and ends, is honey—quite a neat arrangement, you see, so as to have every thing handy—nursery in the center, with the food all round about. But, stop a minute. All the other frames are arranged exactly the same way; so think a little, and you will realize that the brood-nest is a ball, with, of course, the most brood in the center frame, the least at the sides. Now you will understand why you should not disturb the order of the frames when you examine a hive, as changing the arrangement will upset the brood-nest. If you never set more than one frame outside of the hive you will avoid the chance of misplacing the frames.

SHAKING BEES OFF THE COMBS.

May be the comb is so thickly covered with bees that careful inspection is impossible, in which case hold the frame above the hive; raise it slowly about a foot, then lower it quickly, finishing up with a sudden jerk, when practically every insect will drop on the frames below.

Fig. 6 shows the position of the frame at the end of the operation. It is not considered wise to shake the queen off the combs at the season when she is laying heavily. Another way, which I prefer, is to hold the frame perpendicularly by the end of the top-bar with the left hand, then with the right hand clenched hit the left a smart blow from above (Fig. 7). The comb being free from bees, turn your back to the sun

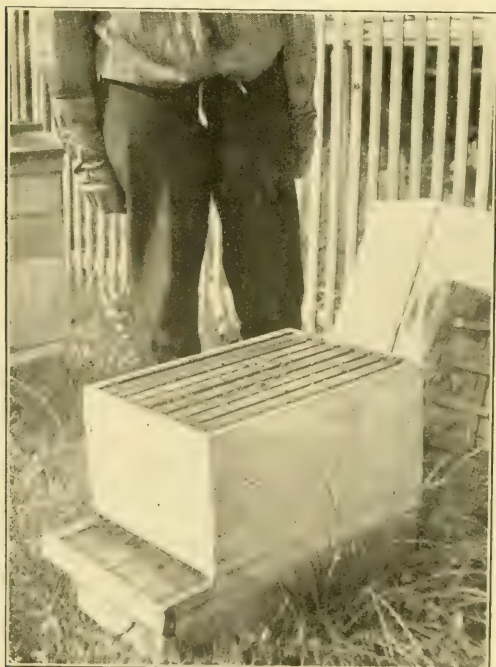


FIG. 3.—The quilt removed.

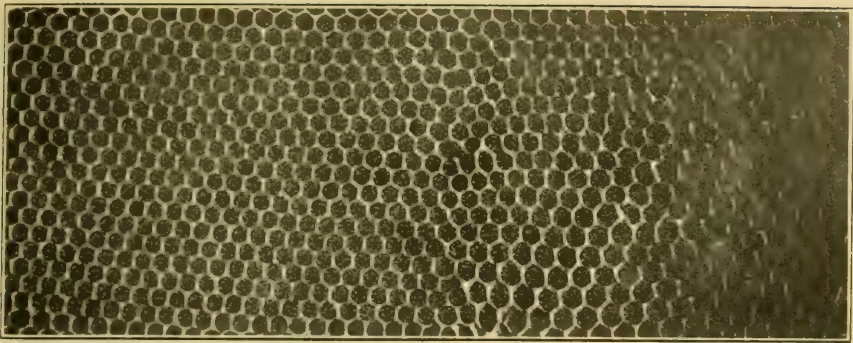


FIG. 5.—Worker and drone cells side by side, showing the difference in size. The former measure five to the inch, while the latter run four to the inch.

so that its rays may shine into the cells. Along the upper part of the frame, and at the ends, the cells will probably be all sealed, the cappings (as the coverings of the cells are called) being flat, or often slightly sunken, and wrinkled, and generally semitransparent. Such sealing indicates the presence of honey. On the edge of this region there will likely be a narrow belt of unsealed cells showing the honey, indicating that the bees are using up their stores to feed the young. When we reach the bottom-board in our investigations we shall find lying there a brownish-looking deposit, like coarse dust, but which is really the fragments of comb-capping torn from the cells.

POLLEN STORES.

Next to the open cells with honey often comes a narrow band of cells filled with a brownish-colored solid substance. This is pollen, or bee-bread, which is the male element of plants, and forms part of the food of the young of the bee while in the larval or maggot stage.

THE BROOD-CELLS.

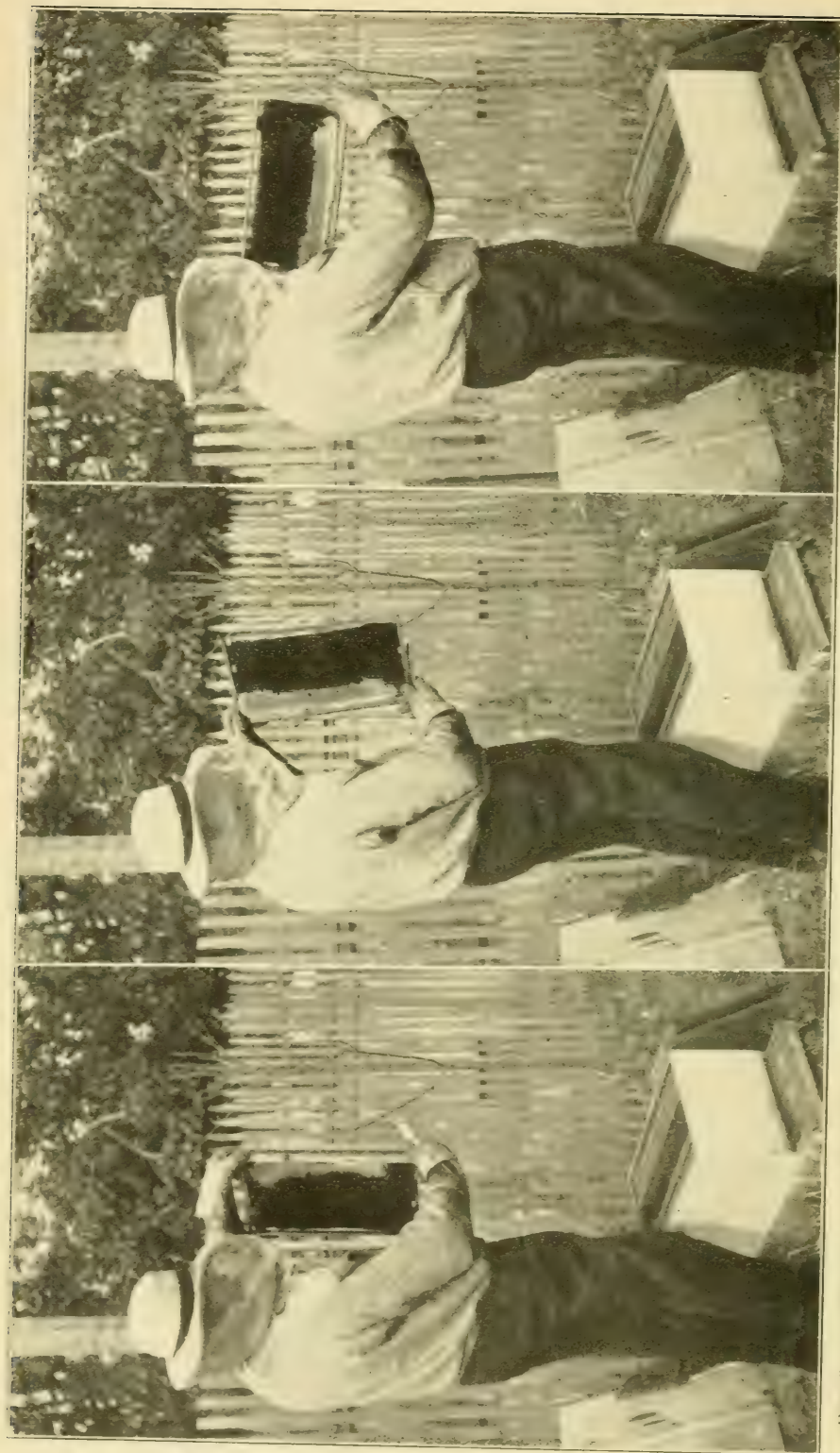
In the center of the frame we find the brood in all stages—eggs, larvæ, and cocoons. The last are sealed over, just as is the honey, with this difference, however, that the cappings are dark-colored, and slightly raised in the case of worker brood—decidedly so with drone-cells. The larvæ are easily seen, coiled up in the bottom of



FIG. 6.—Comb cleared of bees for inspection.



FIG. 7.—The best way to jar the bees from the comb



Figs. 8, 9, 10.—Various positions of holding a comb, showing the manner of turning it in such a way that it is always supported, thus avoiding the danger of a heavy comb dropping out of the frame.

the cell, especially after they are three days old; but the eggs are harder to distinguish on account of their small size; in fact, they look like very short bits of white thread attached to the far end—that is, the bottom of the cell. It is just as well for the beginner to learn to detect the presence of eggs in the comb, for an evenly arranged patch is pretty good proof that the queen has been busy.

HOW TO REVERSE A COMB.

A frame has two sides, so you had better look at the other one too. Your most natural impulse will be to cant the frame over; but don't do so; for as you tilt it up to the level the weight of the comb is apt to break it away. Try it thus: Lower one hand, say the right, until the top-bar is perpendicular (Fig. 8); turn the frame half way round, using the top-bar as a pivot (Fig. 9); then raise the hand that was lowered (Fig. 10). Your frame is now upside down, with the second side toward you. Here is another method that can be carried out without a pause: Let the lugs of the frame rest on the middle fingers of each hand, these being bent toward the chest. Turn the comb end for end by swinging the left hand to the right of the right hand, then swing the comb up into the position shown in Fig. 10. To get to the original position, reverse the movements.

REPLACING FRAMES.

When through with this frame, replace it in the hive, pushing it tight against the vacant side. There is no excuse for placing it on the ground. If you have changed it so that you have forgotten which is the front end, just look at the brood, for the bees prefer to have their young toward the entrance of the hive, but the honey at the rear. When you have examined as many frames as you want, push them over to their original position by putting the hive-tool between the side of the hive and the end-bar of the frame, and using it as a lever. Now insert the frame first taken out, pushing it into place, then the follower.

Occasionally it is necessary to move a brood-chamber from the stand, and to the novice it is a problem what to do with it. He feels he should not set it on the ground, as there is every chance of killing many bees. The smaller the bearing surface the better, so one can use a bottom-board, an empty hive, or a very shallow box, resting the bottom of the hive across the sides.

Our first excursion through a bee-hive has been quite a long one, and has disturbed the

arrangements of the inmates, not only to a considerable extent, but possibly to the injury of the young; for in May it is a rather extensive incubator where many thousand eggs are being hatched while young bees are being brooded. An open hive means the loss of heat; therefore we resolve that in future we will do the necessary examinations as speedily as possible, and never lift the cover unless the shade temperature is about 65 or warmer.

Victoria, B. C.



THE BRAULA CCECA NOT A TRUE PARASITE.

BY JOHN A. WOLFFSOHN.

I notice in your August 15th issue, page 468, an interesting paper on "*Braula cœca*," by Dr. Bruennich, in which the author says that "to my knowledge no one has observed the act [of feeding of the bee-louse] till now." It may interest the doctor and some



Apiary of T. H. Hill, Maywood, Ill., a suburb of Chicago, Ill. A neighbor's house is just back of the fence, but there have never been any complaints. The hives are at the back of the lot in full view of the street, and attract a great deal of attention, especially when the owner is working with the bees.

of your readers to learn that M. Lucien Ichès, in his excellent work, "*L'abeille domestique*," Paris, 1905, quotes the following from J. Pérez, *Notes d'apiculture*:

One day, having captured a bee with one of these lice I fixed its head with a pair of pincers sufficiently to keep it unmovable, and to capture the small parasite easily. Both it and the bee were left for a while on the table in my studio, under a glass.

When I returned to them I was not a little puzzled to see the parasite in the most vivacious and strange agitation. Seated on the fore part of the bee's head it was moving about with incredible vivacity, as though possessed of veritable rage. Now it would go to the margin of the bee's cap, with its fore feet raised, stamp and scratch as hard as its weakness would allow at the base of the bee's lip; then it would suddenly run back to the insertion of the antennæ to renew its impetuous attack immediately. I was quite taken up by my first surprise, when I suddenly saw all this fury turn to per-



"Nailing" together GLEANINGS for half a year.

fect calmness, and the little animal squatted on the edge of the cap and bent down its head to the bee's mouth, which was slightly trembling, and sucked up a drop of moisture.

I instantly understood. The movements I had just witnessed were preparatory to the animal's meals. When the louse wishes to feed it goes to the bee's mouth, where the motions of its feet, armed with bent claws, produce a tickling sensation, perhaps disagreeable to its host, but at least provoking some movement of the bucal organs, which slightly open and release a small drop of honey which the louse at once licks up.

Thus the *Brachia caeca* is not a real parasite of the bee in the true sense of the word. It is rather a guest—queer, if you like thus to consider it, like so many others existing among animals.

Valparaiso, Chili.

BINDING COPIES OF GLEANINGS CHEAPLY.

BY C. A. KINSEY.

Take the copies of GLEANINGS from July 1 to Jan. 1, 12 in all. That is enough to be convenient. Place them in order in a clamp or vise and fasten firmly. Drive three shingle nails along the back on each side. It is not necessary that the nails go clear through if they are driven in from both sides. Then take them to a printing-office if convenient, and have them trimmed. Cover can be added if desired. This way will keep them firmly together, and with the yearly index at the back it will take only a few moments to find any article desired.

GASOLINE-CANS FOR HONEY.

Can you inform me if it is safe to use gasoline-cans to put extracted honey in—that is, if there will be any substance from the gasoline that can't be washed out that would taste in the honey?

I can get a considerable number of such cans, all new and in good condition, for nothing, that could be used to store my honey in, or for local trade.

Belgrade, Mont.

[We do not believe there would be any objection at all to gasoline-cans provided they are clean and free from rust. Kerosene-cans can seldom be cleaned so that all the odor of kerosene is removed, and the honey is then tainted; but if you can be sure that the cans you refer to have never been used for kerosene, but only for gasoline, we do not think there will be any difficulty at all. They would have to be rinsed out, of course; for after a can is emptied of gasoline there is some dirt and sediment that remain, usually; but this could be easily washed out.—ED.]

AN OKLAHOMA EXHIBIT.

Some Proof that Oklahoma is Advancing as a Honey State.

BY N. FRED GARDINER.

Photography has become a wonderful art. It can reproduce on a flat surface, in black and white, marvelous shades of beauty, and in many instances bring to our attention details that escape the eye in actual observation of the original object. But photography falls far short of doing justice to a honey exhibit. It seems that the eye of the camera can not penetrate the glass jar and show up the rich tint and the delicate structure of the honey and the comb.

Therefore we can judge of the relative merit of an exhibit only by comparison.

I did not realize how true this is till I saw the photograph which is reproduced with this article. This is undoubtedly a good photograph, comparatively, but it certainly fails to bring out the beauty of the exhibit. It is a picture of the exhibit of B. F. Bartholomew and wife, of Norman, Oklahoma, at the State Fair, Oklahoma City, 1911. This display covered a space of 10×30 feet, and was a fine example of the bee-keeper's art. There were two other exhibits that would compare favorably with those of other State fairs, but the one shown here took 14 out of 16 blue ribbons, and was, therefore, clearly in the lead.

Mr. Bartholomew made his plans as would an architect—measured his space, then built his special shelving at home and shipped it, together with the jars which he had ordered especially for each space, to the fair.

The designs in honey and wax were especially meritorious, the design in honey being built from foundation in the letters sawed in the boards, and mounted under glass. The designs in beeswax, were the horse-shoe and shield, and were of solid wax, and not dipped. This is another place where the camera fails to give results. The lettering on the shield and the wreath on both are not brought out. These were all hand carved from different shades of wax, and made a most pleasing effect. To the right can be seen just the corner of a fireplace built of solid wax brick, and holding a wax kettle, etc. Mrs. Bartholomew shared equally with her husband in arranging this display. The honey was mostly from alfalfa and sweet clover. This exhibit shows that Oklahoma is already prepared to compete with many of the older States.

Geary, Okla.

SOME PRACTICAL EXPERIENCE WITH A STEAM HONEY-KNIFE.

How it Assists in Extracting and Uncapping when the Honey is Cold.

BY B. M. CARAWAY.

Some time ago the editor asked for reports, favorable or otherwise, concerning the steam honey-knife. There has already been a good deal said about this knife; but I don't feel that it has been given proper credit in spite of all that has been said. It is certainly a wonderful labor-saver.

One of the best features about this knife, and one that has not been mentioned, is that, when the honey is a little cold, the hot blade heats it up so that the extractor will throw it out of the cells easily. Quite often during the extracting season I take off honey one day and extract what I can; but there may be some left over until the next day. During the night it cools off until it is very thick. When I uncap it with the steam knife, however, it warms it up again until it extracts just as quickly as honey just removed from the hive that contains the original heat from the bees.

With the steam knife I can uncap faster than any one can using a cold knife. I have tried nearly all the knives on the market, including a butcher-knife, but none of them can be compared with the steam knife. There have been several large producers here, among them Mr. W. H. Laws, of Beeville, Texas, and all of them have been quite carried away with it. Mr. Laws is the owner of more bees than any other man in Texas, probably, and he said it was the best thing he had seen for a long time. If one uncaps with the downward stroke, the weight of the knife will slice the cap-

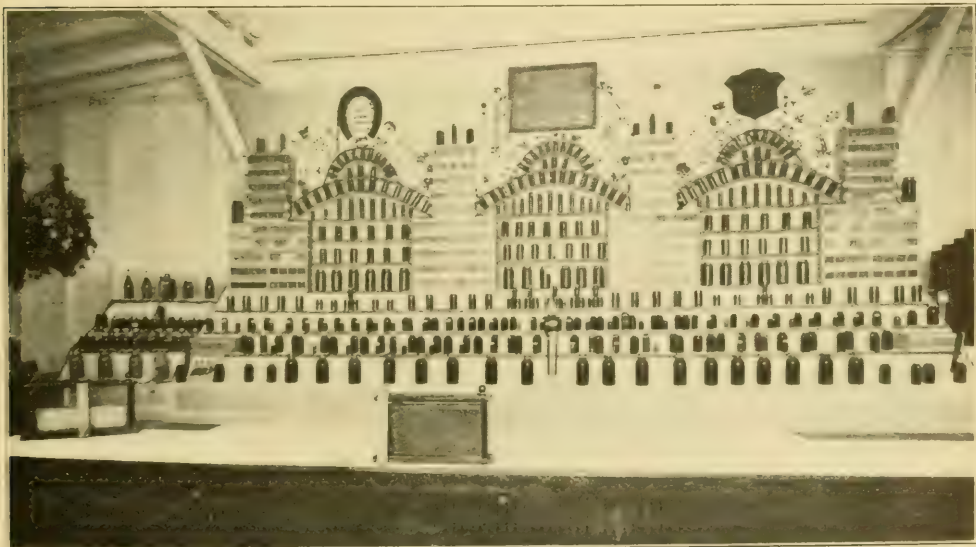


Exhibit of B. F. Bartholomew at the Oklahoma State Fair.



Lewis' ornamental observatory hive.

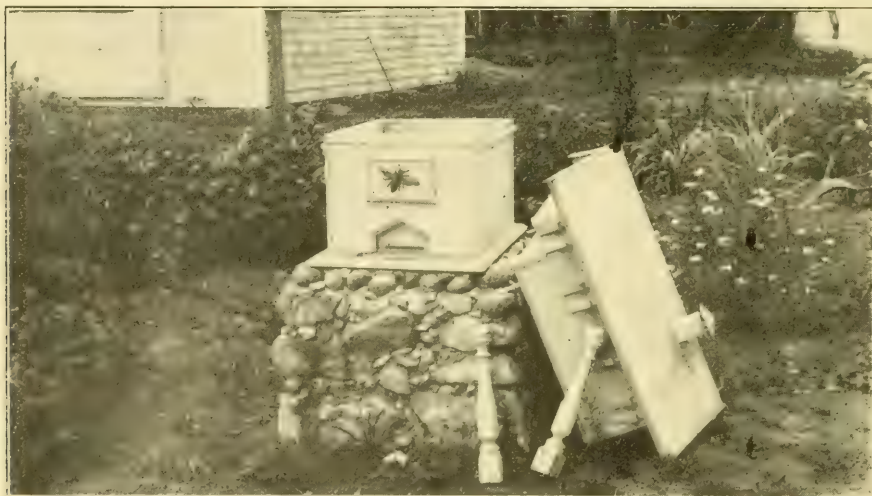
pings off one side. Of course, the knife alone will not go down as fast as though it were pushed a little, but still it does good work. In fact, while it will not do all my uncapping entirely by itself, it makes the work much more pleasant.

The worst trouble that I have had is that I have to wait a few minutes for the steam to be generated; but I find plenty to do in this time, as I have the cases to open and the tops of the pails to pry out, so that, before I get ready, the water is boiling hot and the knife ready for use. On page 272, May 1, Mr. O. B. Metcalfe says that he has trouble in generating steam enough, and he finds some kind of boiler having flues necessary. I have never had this difficulty; but it may be that the honey has a great deal to do with it. On one occasion I had

the stove turned up too high; and the can, in which I was generating the steam, burned. I use a one-burner gasoline-stove and a five-gallon can for the boiler, and I have never yet failed in having all the steam I wanted. I put in about a gallon and a half of water.

On page 451, August 1, Mr. Crane says that, while the steam knife works finely, it leaves a thin scum of wax over the cells; and when the honey comes from the extractor, this thin scum will go right through the strainer and then rise to the top of the honey in the can. I have never had any such trouble as this, although I have extracted several thousand pounds this year, all of which was uncapped with a steam knife.

The heat from the stove does not bother



The inside has the same dimensions as an ordinary ten-frame hive, and the sides are of glass.

me, for I have a fan run by a belt from a pulley on the engine. The fan was too much of a good thing at first, for it kept blowing out the blaze; but I remedied this by making a shield of a board in front of the stove, so that I have had no trouble since.

The great advantage of the steam knife is that one does not have to stop to scrape the cappings off the blade. The metal is so hot that they slide off as fast as they get on, and it is just here that the hot knife saves a great deal of time. Some have objected to the steam hose or tube, but I have never found it awkward in the least. In a very few minutes one becomes accustomed to it. Mathis, Texas.

[There can be no question but that on some honeys the steam-knife is greatly superior to the cold knife or one dipped intermittently in hot water. The steam-knife keeps hot every minute of the time, and, as Mr. Caraway says, it warms the honey and makes it unnecessary for one to keep scraping it on something to remove the excess of cappings.—Ed.]

BEE-KEEPING A RECREATIVE PURSUIT FOR A PROFESSIONAL MAN.

BY REV. J. M. LEWIS.

I wonder every suburbanite who has a garden does not have at least one colony of bees. They seem to me to be safe to keep, and perfectly harmless if treated with kindness and due consideration.

I have several colonies which are within ten feet of the house, and about thirty feet from the road where teams and automobiles are passing almost continually, and they have been there for more than five years, and have troubled no one.

I am sending some photographs of an ornamental hive which stands in the center of my flower-garden, the home of a fine colony of golden Italians. Scores of people—men, women, and children, have visited my garden this season, and not a person has received a sting. I have repeatedly opened the hive and removed the frames with the bees clustered on the combs to show my friends what can be done with bees.

I never use any protection in working among my bees, and but very little smoke; and sometimes I do not use the smoker at all.

The ornamental hive shown in the pictures is a fine advertisement, as it attracts the attention of people passing by. It is a double-wall hive. The inside is a standard ten-frame hive, and takes two supers. The brood-chamber has glass sides and back, and glass in the top cover, which I use when no supers are on. The foundation on which it stands is made of stones of different formations gathered from near and far, laid in Portland cement.

There are many ways in which an ornamental hive can be made, and yet be practical and an ornament, as well as a benefit to a flower or vegetable garden and to the

fruit-trees, of which almost every garden has at least a few, and will attract more attention than a rare plant or exquisite flower.

North Westport, Mass.

THE DISCOVERY OF THE SECRET OF FLOWERS.

A Brief Sketch of the Work of Sprengel and Mueller.

BY JOHN H. LOVELL.

The human race has long assumed (being the only organism at liberty to take itself at its own valuation) that it occupies a position of fictitious importance in the universe. It was a current maxim in the Middle Ages that man was the measure of all things. The world and its inhabitants, so ran this pleasant myth, was created a few thousand years ago solely to provide him with a congenial place of abode; and, because of his paramount importance, was placed in the center of the heavens. Not a little ingenious (and to-day amusing) speculation, was expended in an effort to explain how natural cataclasms and noxious animals and plants were disguised blessings; but that such was the fact, no doubt was permitted to exist. From these modest pretensions we have been receding for some centuries with much hesitation and reluctance. Perhaps the close of another hundred years will see them abandoned altogether, and humanity willing to admit that it is a part of nature, not outside and above her.

So long as these teachings prevailed it was very naturally a popular notion that the bright colors of flowers were of no importance except as they gave human pleasure. Much superfluous pity was wasted on those blossoms which, to use the words of the poet Gray, blushed unseen and wasted their sweetness on the desert air. Only a few years ago a similar sentiment was expressed by the editor of one of our popular magazines: "There was apparently no particular reason why the earth, at the time of Adam, should have been literally strewn with blossoms. They were of no particular use; there was only one man to see them."

This same idea is again repeated in Emerson's beautiful lines—

THE RHODORA.

In May, when sea-winds pierced our solitudes
I found the fresh rhodora in the woods.
Spreading its leafless blooms in a damp nook
To please the desert and the sluggish brook:
The purple petals, fallen in the pool,
Made the black waters with their beauty gay;
Here might the red-bird come his plumes to cool,
And court the flower that cheapens his array.
Rhodora! if the sages ask thee why
This charm is wasted on the marsh and sky,
Dear, tell them that, if eyes were made for seeing,
Then beauty is its own excuse for being.

It would seem never to have occurred to poet, editor, or philosopher that the beautiful hues of flowers might be useful to the plants producing them.

It was a German pastor, Christian Conrad Sprengel, at the close of the 18th century, who first pointed out the true signifi-

cance of conspicuous flowers. His book, now a botanical classic, attracted but little attention; his publisher did not even send him a copy of it, and in discouragement he did not publish the second volume, but turned from the study of plants to that of languages. The title of the work, "The Secret of Nature in the Form and Fertilization of Flowers Discovered," affords us the pleasure of knowing that he rightly estimated the importance of his observations. Sprengel clearly states, as is now well established, that the bright hues of flowers serve as signals to attract the attention of nectar-loving insects flying near by. He was led to this conclusion very fitly by the study of *Myosotis*, or the forget-me-not. He has not been forgotten. His name and theory were rescued from obscurity by Darwin; his book a few years ago was republished at Leipsic, and is now universally recognized, says Mueller, as having "struck out a new path in botanical science."

Sprengel was convinced that the wise Framer of nature had not produced a single hair without a definite purpose, and he examined a great many flowers for the purpose of learning the meaning of their forms and the arrangement of their parts. The salver-formed flower of the forget-me-not is sky-blue with a yellow eye. "While studying the flower of *myosotis* I was struck," he says, "by the yellow ring which surrounds the opening of the corolla tube, and which is beautifully conspicuous against the sky-blue color of the limb. Might not, I thought, this circumstance also have some reference to insects? Might not Nature have specially colored this ring, to the end that it might show insects the way to the nectar-reservoir? "On further observation he found that the entrances to many other flowers were marked with spots, lines, and dots differently colored from the rest of the corolla. These markings he called "nectar-guides." "If the particular color of one part of a flower," he rightly inferred, "serves to enable an insect which has settled on the flower easily to find the right way to the nectar, then the general color of the corolla is serviceable in rendering the flowers provided with it conspicuous even from afar to the eyes of insects that hover around in the air in search of food."

Sprengel decided that flowers secrete nectar for the sake of attracting insects, and that it is protected by hairs or nectaries in order that they may enjoy it pure and unspoiled. At first he thought that the flowers receive no service in return; but he soon observed that the guests pollinated the flowers. He even noticed the frequent occurrence of cross-pollination, and remarks that "it seems that Nature is unwilling that any flower should be fertilized by its own pollen." He described the manner in which some 500 flowers were pollinated; but as he knew little about insects he did not pay much attention to the different kinds of visitors.

But while Sprengel had learned the secret

of flowers, and knew that their colors, odors, and forms were not useless characters, he failed to discover why cross-pollination is beneficial; and this omission, as Mueller has remarked, was for several generations fatal to his work. In 1841, Robert Brown, an eccentric English botanist of great learning, advised Darwin to read Sprengel's book. "It may be doubted," says Francis Darwin, "whether Robert Brown ever planted a more beautiful seed than putting such a book into such hands." Thus is the torch of learning, shining with ever increasing effulgence, handed on from one investigator to another. Darwin was already engaged in studying British orchids, of which he wrote to Bentham, "They are wonderful creatures, these orchids." His interest in the structure and pollination of these curious plants was greatly increased by reading what the old German pastor had done. Darwin soon discovered that frequent crosses increase both the vigor and productiveness of the stock, and that an occasional cross is indispensable. The principal agents which nature employs for this purpose are insects, birds, wind, and water. So impressed was Darwin with the importance of cross-fertilization that he closed his famous book on orchids, which marks the next great epoch in flower ecology, with the words, "Nature abhors perpetual self-fertilization." "The charm," says Mueller, "was now broken, and the value of Sprengel's work was at once recognized." "The merits of poor old Sprengel," says Darwin in his biography, "so long overlooked, are now fully recognized many years after his death."

In 1866, Darwin's *Origin of Species* and book on orchids was read by Hermann Mueller, a young teacher at Lippstadt, Germany, who thenceforth enthusiastically devoted the rest of his life to the study of the pollination of flowers. Many other investigators were also stimulated by these epoch-making books to study the charming problems of floral structure, as Delpino in Italy, Axel in Sweden, Hildebrand in Germany, Asa Gray in North America, and Fritz Mueller in South America. But they were all easily surpassed by Hermann Mueller, who is still regarded as the foremost of florocologists. In Thuringia and in the Alps he examined many hundreds of blossoms and observed the visits of insects by thousands. He was the first to collect and publish lists of flower-pollinators on an extensive scale, and the biology of flowers may thus be said in its broadest sense to have been established by him. Never since has this branch of botany been cultivated with equal success. His book, "The Fertilization of Flowers," ranks with the works of Sprengel and Darwin, and marks the third great epoch in the history of the ecology of flowers. It is illustrated by many excellent wood-cuts, the drawings for which were made by Mueller himself. It contains descriptions of the floral mechanisms of a great number of species of plants, with lists of

their insect visitors. It will give some idea of the immense amount of labor involved in its preparation to state that 5231 visits to flowers by 843 different kinds of flower-visiting insects are recorded.

Mueller had never forgotten his earlier delightful journeys among the Alps, nor its rich and brilliantly colored flora. For six summers he continued with great diligence to investigate its flowers, and the result was his second great work entitled "Alpenblumen," or the Flowers of the Alps. Here are enumerated 5711 visits by 841 species of anthophilous insects. It is impossible to read this account of the mysteries of the floral world in high altitudes without longing to visit the scene of his investigations. The short summers, the rapid (not to say impetuous) advance of vegetation, the simultaneous blooming of many species, the brilliant hues, the wealth of insects, and especially the great abundance of butterflies, against a background of snowy summits, form a most enticing picture. Mueller published a third book on flowers, besides many shorter papers.

To-day there are very few investigators engaged in studying the life histories of flowers. In North America they number less than half a dozen. Most observers are content to restrict their attention to the botanical side of the subject, and ignore the great company of pollinators. Even Charles Darwin and Anton Kerner, whose writings still remain an ever inspiring source of information, gave little heed to the ways of the insect guests. The reason for this is not far to seek. To collect and prepare lists of the visitors and to observe their behavior requires so enormous an amount of time, labor, and patience that the opportunity is possible to very few people. Suppose that a flower is in bloom for two weeks, then, on every calm bright day many hours must be devoted to this work, for the guests at the beginning of blooming-time may differ from those at its close. There follows the almost insuperable task, at least in America, of determining the names of the captured insects. With the exception of the butterflies we have no manuals of the different orders, and the literature is in a truly chaotic condition, many papers not being obtainable at any price. It is noteworthy that each of the three or four more prominent investigators of florocology in America has been compelled to work up the classification of the bees in his locality—a rather formidable undertaking in itself. So closely allied are the species and genera that no one can distinguish them without a special knowledge of the group, which in its relations to flowers exceeds all others in importance.

But the value of an acquaintance with the insect visitors can not be easily overestimated; for some species fly only in the spring, others only in the fall; some species visit only one kind of flower, others many kinds; some are most welcome guests, others are mere robbers. I should never have dreamed that the pretty nodding pink

blossoms of the twin-flower, with its sweet vanilla-like fragrance, are in our northern woodlands attractive to gnats alone. One afternoon a large bed of these delicate flowers was carefully observed, and eight visitors were collected. On examination they were found to belong to a single species of fly (*Empis rufescens*). Further observations show that in this locality this fly is probably the only guest. A burly bumblebee flew over the flowers without paying any attention to them.

Among aquatic plants living in freshwater rivers is the bladderwort (*Utricularia vulgaris*). The whole plant is submerged; but at blooming-time a flower-stalk is thrust out of the water, which produces deeply two-lipped bright-yellow flowers. I surely expected to find it a favorite of bees. But after repeated observations I have collected on the flowers in Maine only the long-tongued syrphid fly *Helophilus conostomus*. There is no way in which we can so easily learn the defects of flowers as to watch the behavior of insects upon them. No human eye can discover them so quickly. In a word, if we would fully understand the bright-hued floral edifices which so freely adorn the outdoor world we must study the *modus operandi* of their architects and builders.

Waldoboro, Me.

A FEW RANDOM NOTES ON THE WAY BEES "MAKE" HONEY.

BY ARTHUR C. MILLER.

[Most of us think we know all about honey production; and that is true if we consider the processes that take place from the hive to the consumer; but as yet no one has ever gone into details telling what takes place from the blossom to the comb, and for the very good reason that most of us would not take the time to see what is done, even if we knew where and how to look. With a specially constructed observatory hive by which the bees are compelled to build the edge of the comb up against the glass, it is possible to see what has hitherto been denied the ordinary observer. If we are not mistaken, Mr. Miller is the pioneer in the use of this kind of glass hive. In the following article he tells a story that is exceedingly interesting to the student of nature—a story that we believe will be verified by any one else who will take the time to watch the bees work when in the hives.—ED.]

The bee returning from the field with a load of nectar does several things which are quite contrary to the rules we have laid down for her. She does not rush for a cell to put it in; on the contrary, she spends a seemingly needless amount of time wandering about and inspecting cells. When at last one is found that seems satisfactory she enters it, feet up and back down. If the cell is empty she puts her mouth into the upper and rearmost angle, opens her mouth and mandibles, and at once a drop of nectar is seen to well up until it touches the cell. Slowly the head is turned from side to side, spreading the nectar against the corner of the cell. All the time the mandibles are kept in motion as if biting, though the tips do not meet. The outflowing nectar fills

the mouth, flows up over the upper lip (labrum), and fills the space between the mandibles. When the bee has emptied her sac she backs out of the cell, wipes off her face, antennæ, and tongue, stretches and plumes herself, and, likely as not, crawls into some cell or hangs in some quiet corner for a nap. Thus she may stay for a few minutes or for half a day. Busy little bee!

If the load is to be deposited in a cell already containing more or less honey the procedure is the same, except that mandibles and mouth parts are submerged in the honey in the cell. No matter how far the honey may lie out on the floor of the cell, the bee never gets her face in it, but tips her head out until it looks as if it would part from the thorax. In all the depositing of honey or nectar the tongue is never used, but is kept folded behind the head.

So far as it has been possible to determine, the nectar-laden bee never yields any of it to the other bees. This statement applies to times of plenty; for when the colony is on the verge of starvation the home bees do sometimes obtain food directly from the returning worker. If they do it at one time they may at another; but certainly such is not the common way when honey is being freely gathered.

At night the ripening process, which during the day receives little attention, becomes the work of a very large part of the bees. Over all vertical surfaces the bees spread in single layers, and each bee appears to have plenty of elbow room. Every honey-treating bee hangs vertically with head up. The mandibles are spread, the mouth opens, and a drop of nectar appears, increasing in size until it fills the mouth, flows up over the upper lip (labrum), and fills the space between the mandibles. Then what, for convenience, we will here call the lower jaw (labium) begins to move with a chewing-like motion, and this causes the exposed drop of honey to "pulsate." Slowly and steadily this is done, the bee sometimes continuing it with one drop for ten, twelve, or even more minutes; then there is a pause, the drop is swallowed, and the bee rests for a few seconds; then another drop appears, and the process is repeated. The volume of the exposed drop is somewhat less than the capacity of the honey-sac—estimated at a quarter to a third less.

Each individual bee continues her work until seemingly the nectar is so changed that it ceases to excite the nerves. When this stage is reached she generally deposits her load in a cell and goes to sleep, although sometimes she may take another sacful from some cell and resume her labors. Just what the age is of the bees doing this work has not yet been determined; but so many bees work at it that it seems as if bees of almost all ages take part.

When the bees have not room to store their loads after treating them they must needs keep them, and it is then that they secrete wax freely. The very process of "ripening" seems to cause the production of

much wax; but if the bees have to hold their loads the amount produced seems much greater. Perhaps it is not so much more as it seems.

That the ripening process is accompanied by wax production is easily proved by the following experiment: Feed a colony with thoroughly ripened honey diluted with about one-third its bulk of water. The bees will store and thicken this, but will not produce much wax—very little, in fact, unless they are getting some nectar at the same time. Feed another colony a syrup made of equal parts of granulated sugar and water, or, for more pronounced results, use more sugar. This colony will produce a lot of wax—so much, in fact, that if the experiment is continued for four or five days the new wax will be found stuck all over combs, frames, hive-sides, etc.

At the time the two colonies are being thus treated, two more should be allowed only what food they get from the fields, and these colonies used as "checks," i. e., colonies under normal conditions to compare the other two with.

The colony continues its ripening labors until about 11 P.M., sometimes a little later, occasionally as late as 1 A.M. The cause of the variation is unknown. All during this work the colony keeps up the deep hum, so well known and so welcome to bee-keepers. The cause of the humming is not determined. It does not seem as if the proportionately few bees fanning could cause it all.

An examination of the bees doing the ventilating is interesting, for the volume of air they drive from the entrance seems out of all proportion to the number of bees doing that work.

Most of such fanning is done at or near the entrance, and not by masses of bees all through the hive, as commonly supposed. There are occasions when fanning is done all through the hive, as when the heat is very great or when the hive is deluged with smoke; but these are not normal conditions.

The attention of students of the grand functions of the bees is called to the opportunity afforded for the secretions of the glands opening on the mandibles to mix with the nectar.

Providence, R. I.

[The statement has been repeatedly made that the ordinary bees on returning from the field, laden with nectar, do not deposit their loads directly in the cells, but pass them along to young bees in the hive, not old enough to go to the field; that these latter, in turn, deposit nectar in the cells, and then return to unload other worker bees that have come from the field.

Busy as a bee! It is popularly supposed that the bee works incessantly if we except the hanging-out in front on a very warm day when the entrance is contracted too much. This is a very interesting field for study and observation. If any of our readers have a story to tell different from that presented by Mr. Miller, we hope they will tell us what they have really seen.—Ed.]

Beginners' Questions.

In presenting this list of questions it should be understood that it is impossible, in many instances to do justice to the subjects in the short space here allowed, and for full particulars we refer the reader to our encyclopedia on bees—the A B C and X Y Z of Bee Culture—a book that is of inestimable value to the beginner and expert as well.

Q. Where can bees be kept?

A. There are few places in the country where one or more colonies of bees can not make honey. It is true that the natural surroundings may be unfavorable to the bees, but one who has had no experience is often astonished as to distance bees will go in search of nectar of the flowers. In almost every large city there are some bee-keepers who have bees right in the heart of the city, either in back lots or on the roof of buildings. Ordinarily, bees will go from one to three miles in search of nectar, but if there is none nearer they will go much further. There are cases on record of bees going seven miles from home.

Q. Do bees ever make trouble in a city?

A. It is very seldom that bees make trouble of any sort in a town or city, and if the bee-keeper is careful, there need be none at all. We advise placing the hives in the back yard as far away as possible from the general highway.

It is true that in some few cases city councils have attempted to pass ordinances declaring bees to be a nuisance; but no such ordinance is constitutional, as the supreme court of Missouri in what is known as the Arkadelphia case, has decided that bees are not a nuisance per se. A similar case was tried in Rochester with the result that a verdict was rendered in favor of the bees. Full particulars concerning these can be obtained by addressing General Manager N. E. France, of the National Bee-keepers' Association, Platteville, Wis.

Q. What must be planted for bees to work on?

A. Strange as it may seem, it usually does not pay to plant anything that is valuable only for the honey unless waste places such as roadsides or fence corners can be utilized that would be of no value in any other way. Very often the natural sources of nectar in a locality can be augmented by the sowing of sweet clover seed, and since this is becoming to be known as a valuable forage instead of a pest or weed, as it was formerly called, there is no question but that it pays to grow sweet clover for hay and thus secure some additional honey of fine quality, also. However, it must be remembered that each blossom yields only a small amount of nectar, hence there must be hundreds of acres of any such plant before any great difference will be noticed in the surplus honey produced, if there are very many bees in the locality. However, as stated first, almost every locality has enough natural sources of nectar to support one or more colonies without artificial pasturage.

Since alfalfa clover and alsike clover are being grown more and more even by the farmers of the East, there is every reason to suppose that there will be more honey produced from these sources in the future than ever before. Buckwheat is a good yielder and especially valuable for furnishing nectar in the late summer to keep up brood rearing.

Q. Do bees do well in a fruit country?

A. The fruit trees alone, unless there are acres and acres of them, do not usually furnish enough honey to be noticeable in the surplus supply secured, but of course there are many exceptions to this in localities where fruit is grown extensively. In this connection, however, it might be well to state that bees are a necessity in a fruit growing locality, for without their aid the blossoms do not set, that is the cross fertilization is not accomplished. It is true that the

wind and other insects distribute the pollen to a certain extent and thus fertilize the blossoms, but at the same time, if there are no bees at all a great many of the blossoms will not bear fruit. A simple experiment may be tried to prove this: Cover a branch of blossoms with coarse mosquito netting which will just prevent the bees from getting through, and it will be found that the blossoms on this branch will not bear fruit, even though the netting is removed as soon as the petals fall.

Q. Do bees work on ripe fruit and spoil it?

A. If the skin of the fruit has been punctured by some other insect or by the birds, it is true that the bees will work on the pulp and juice of the fruit thus exposed, but such fruit would be unfit for market anyway, hence the bees after all do no real harm. Bees by themselves can not possibly puncture the skin of fruit. Sound fruit, if kept carefully guarded from birds and other insects, will be untouched by the bees. This has been demonstrated over and over again.

Q. How many kinds of bees are there in a colony?

A. During the early part of the summer a normal colony consists of one queen, the only perfect female in the hive; several hundred drones (the male bees)—and any where from twenty to fifty thousand worker bees, which are undeveloped females. The queen is not the ruler of the hive as was formerly supposed, but is simply the mother; she lays the eggs. A good prolific queen in the height of the season will lay from two to four thousand eggs per day, or nearly twice her own weight, in twenty-four hours. Continual feeding by the worker bees enables her to do this. The drone is the male bee and he has no sting nor any suitable tongue with which to work; hence the drone does no work, not so much because he is lazy but because he has no tools to work with nor weapons with which to defend the hive. The workers are stunted females, and as their name indicates, they do all the field work such as bringing in pollen, nectar, building the comb and feeding the young.

Q. How many colonies can one man take care of?

A. This depends on the man and so this question can not be definitely answered any more than one could positively say how many acres of land one man could farm. However, one man with a little help in the busiest part of the season can usually care for as many as five hundred colonies if he is experienced. Colonies of bees in order to produce good results, must be properly taken care of. A hundred weak colonies not in good condition for producing honey by the time the main honey-flow opens, will not produce as much surplus as ten colonies that are very strong and in the very best condition at the time the main honey-flow begins.

Q. What profit can reasonably be expected?

A. As much as \$10.00 per colony has been secured where there are only a few colonies to the locality, but this is above the average. \$2.00 to \$3.00 a colony would be about the figure where there are a large number of colonies.

Q. How much increase can be expected in a year?

A. If natural swarming is allowed a fifty percent increase is perhaps an average. No colony should be allowed to swarm more than once, for the parent colony is too greatly re-

duced in strength if more than one normal swarm issues. Professional bee-keepers usually make their increase artificially, however, and it is not at all a difficult matter to double the number of colonies in a year. In fact, an expert, when all conditions are favorable, can increase a three-frame nucleus which is only about one-third the size of an ordinary colony into ten full size colonies by fall, but of course this is beyond the reach of the average amateur. The whole question of increase is fully explained in the A B C & X Y Z of Bee Culture.

Q. Will beating tin pans, ringing bells, etc., stop swarms?

A. No. Almost every swarm immediately after it issues will soon cluster anyway at some convenient point until the bees get their bearings. How the custom of beating tin pans, etc., started no one knows. If a swarm is inclined to make for the woods at once, the bees can be made to cluster very quickly if a good spray pump is at hand for a good drenching so wets their wings that they are forced to cluster until they can dry off.

Q. Is it possible to remove bees from hollow trees or the walls of a building?

A. Yes, this may be done without trouble but the easiest way is to cut down the tree or remove some of the siding of the building, as the case may be, but if this is impractical a device known as the bee-escape may be placed over the opening or entrance which will allow the bees to pass out but will prevent them from going back in again. If a hive containing comb is arranged close to the opening on the outside, all the bees may be secured in this way, or practically all of them except the queen and brood. A new queen will have to be on hand and introduced to the bees. Most of the modern books on bees describe the various processes of transferring bees from trees or buildings into hives, so that one who is desirous to start in this way need have no particular difficulty.

Q. What strain of bees is the best?

A. There are not as many different varieties of bees as of poultry, for instance, owing to the fact that since the mating of the queens and drones takes place in the air, the male parentage can not be controlled, hence if a number of different varieties of bees were kept in the same yard they would soon be hopelessly mixed up and a mongrel bee be the result. The Italian bees are preferred by the majority of bee-keepers in this country, although the Carniolan and Caucasian bees are beginning to be used somewhat where early brood rearing is desired.

Q. Can one who takes care of bees keep from being stung?

A. Yes, if necessary, one can so protect himself with a good veil, gloves, etc., that there is practically no danger of receiving a sting; but practical bee-keepers after they have been stung a very few times are not bothered very much in this way, for the stings lose their effect, that is the system becomes immune to the poison so that no swelling takes place.

Q. Is there any danger of bees stinging neighbors or their cattle?

A. There is some danger, but at the same time very little. Occasionally, sweaty cattle or horses if allowed to get in the direct line of flight of the bees, will irritate them so that they may be stung, but after all, such instances are not the usual thing. If proper precautions are taken, neighbors need not be annoyed in any way. If robbing is allowed bees are always more irritable.

Q. How may I know when bees are robbing?

A. When bees are working in the field there will be a quiet, contented hum that is very different from the excited high-key note that one hears when bees are robbing. At such times they are almost sure to be cross, and when it is allowed to continue they may

sting not only human beings but domestic animals. A careful examination of the apiary and surroundings may show that the bees are either robbing some hive or hives, or have got into the honey-house or kitchen, and are helping themselves to sweets. In the case of the building, the doors should be closed immediately. Toward night, they can be opened allowing the robbers to go back home. But doors should be kept carefully closed the next day and thereafter because the robbers will come back.

If the bees are robbing some colony or colonies there will be found more or less fighting at the entrances. Some bees will be stung to death; and after the colony is overpowered, robbers will rush in and out at a terrific rate. There will be a general uproar in the apiary; and if these conditions continue, other colonies that perhaps are not as strong as they should be, will be robbed and possibly overpowered. The remedy is, to carry the robbed colony or colonies down cellar immediately, where they should be kept two or three days. When set back on stand, the entrance should be contracted down to a space so that only one or two bees can pass at a time. For full particulars on this subject, see "Robbing," in the ABC & XYZ of Bee Culture.

Q. How can I distinguish the play-spell of bees from robbing?

A. On bright days, especially those days following inclement weather, after bees have been shut up for some time, one will often find an unusual commotion in front of some particular hive. Bees will be flying thickly before the entrance in such a way that a beginner might suppose it to be a case of robbing; but there will be no fighting, no bees struggling against each other, no dead bees, but, on the other hand, bees will be flying around aimlessly in front of the entrance, a few going in and some out. When there is robbing going on, there is a life-and-death struggle; and after the colony is overpowered the robbers will be rushing into and out of the hive at a furious pace. For further particulars, see answer to preceding question.

Q. What kind of hive is the best?

A. This question can not be answered definitely. Complicated patent hives are usually very little if any better than the cheap wooden boxes that they are sold at a high price to take the place of. The standard ten-frame hive is preferred by the majority of honey producers, but if comb honey is to be produced the upper part of the hive should be of a different style than if the bees are to run for extracted honey. Beginners in the North will succeed best with the ten-frame double-walled packed hive that is warm in winter and cool in summer.

Q. What are the different parts of a bee hive?

A. A regular beehive consists of a floor or bottom board; a brood chamber which contains the ten frames that surround the combs; the super that holds the square sections for the surplus honey, and the cover. The brood chamber is a plain box usually with notched or dovetailed corners to give added strength, and with the end of the box rabbeted at the top to hold the projections of the top bars of the frames that surround the combs. The bees are induced to build the combs in these frames by means of a sheet of what is known as comb foundations that is suspended in the middle of each frame, which acts as a pattern to enable the bees to build their combs straight. If this were not used they might build the comb crosswise of the frame or in bunches or in clusters, so that it would be impossible to separate one comb from another for purposes of inspection. The super or upper part of the hive gets its name from the fact that it holds the superabundance of honey. The modern bee-keeper does not rob his bees; that is, he does not take from them honey that they require for their own food, but simply removes the surplus of which there

is often ten times as much as they could possibly use themselves.

Q. How can I tell a queen cell from all the rest?

A. It is much larger than the rest of the cells and stands alone by itself. It somewhat resembles a long-pointed peanut, and it is built on the surface of the comb with the small end downward. Usually, queens cells are found on the lower part of the comb.

Sometimes old queen cells are left over from the year before and these should not be confused with fresh cells. The old ones do not have a finished look and are generally dark colored and very shallow, scarcely noticeable from the rest of the comb, except in size.

Q. What is the best way to introduce a valuable queen?

A. Select a couple of frames of hatching brood and place them in an upper story on top of a queenless colony with wire cloth between the two stories. After a number of young bees have hatched, release the queen among them. In about a week's time or after most of the bees have hatched, set the two frames of bees and queen down into the lower story and all will go well providing that any queen cells in the lower story are destroyed.

Usually there will be directions to go with these queens when sent out by mail. Of the cage plans for introducing, the push-in-comb-cage plan we consider the most reliable. For particulars regarding these, see "Queen-cages," on another page.

Q. What is pollen?

A. The ordinary diet of young bees is the food or pap made of a mixture of honey and pollen. Pollen is gathered from the flowers, and carried to the hive in large pellets packed on the bees' legs. Unless bees have sufficient pollen in the hives, brood-rearing can not be carried on, for pollen furnishes the nitrogenous element that is required.

Q. Some of the cells in my combs are half filled with a semi-hard, granular substance. What is it?

A. Bee-bread; that is, pollen packed hard in the cells for future use. Sometimes, this becomes old and stale so that the bees do not use it.

Q. What is propolis?

A. Propolis is a resinous red to brown substance that is sticky in warm weather, and brittle in cold weather. The bees use it for closing up gaps or openings, especially those openings that would let in cold air. They gather propolis from gums found on trees, and from buds. It has no commercial value.

Q. How can I remove propolis from my fingers?

A. A few drops of kerosene or gasoline will soften it so it can be easily removed by the use of soap.

Q. Do bees have diseases?

A. There are a few diseases of the adult bees such as dysentery, bee paralysis (not like paralysis of the human body); but the most serious diseases are those of the brood such as American or European foul brood. These, however, may be easily cured unless the bee-keeper is so negligent as to allow his whole yard to become diseased before he does anything about it. See A B C & X Y Z of Bee Culture.

Q. What causes the bees to carry their brood out of the entrances of the hives?

A. There may be several causes. First, the moth-miller, or moth-worms, rather, that have built their galleries through the sealed brood, destroying the young brood. These the bees will carry out and deposit in front of the entrance.

The most probable cause is chilled or overheated brood. Sometimes the combs, when handled by inexperienced bee-keepers, are ex-

posed for some little time to chilling winds. Such brood will die as the result of exposure, and will be carried out in front of the hive. Sometimes the entrances of the hives are too small in extremely warm weather. The bees are unable to ventilate properly, and the hives become overheated, thus killing the brood. The result is, it is carried out and left in front of the entrance. The third cause is poison gathered from fruit-trees by bees during spraying time. The brood dies, and is carried out as before.

Q. I have noticed a fine powdery substance on the bottom board. Does this indicate that something is wrong?

A. No, this is merely bits of cappings gnawed off by the bees or bits of comb, wax, or propolis. There is no occasion for alarm when this is found.

Q. What is the best way to get rid of moths?

A. Do not listen to any one who wants to sell you a patent moth trap or moth-proof hive. Strong colonies of vigorous Italian bees protect themselves against moths and moth larvæ, so that this trouble is practically unheard of in an Italian yard. Of course, if colonies are allowed to get weak and to degenerate moths may affect an entrance and make trouble, but not otherwise.

Q. What is a bee smoker?

A. A device for blowing smoke on the bees—not to stupefy them but to cause them to fill up with honey so that they are better natured and thus more easily handled.

Q. What is the best fuel for smokers?

A. Unquestionably greasy waste is best, such as can be obtained at any ordinary machine-shop, for the asking. Rotten wood, planer shavings, old rags, etc., do very well.

Q. What is the difference between "comb" and "extracted" honey?

A. Comb honey is produced by the bees in small, square boxes and sold in this way just as the bees left it. The extracted honey is the liquid honey thrown out of large combs filled by the bees, in a centrifugal honey extractor which works somewhat on the principle of a cream separator. That is, the liquid honey is thrown out of the cells leaving the comb as good as ever and it is put back in the hives and filled again by the bees. For this reason the extracted honey is cheaper as the bees do not need to build new comb each time.

Q. Which is the more profitable to produce, comb or extracted honey?

A. This depends largely upon circumstances. One who has but a few colonies had better produce comb honey, for the equipment required for extracted honey production is quite expensive and the outfit would usually not be warranted for a very few colonies. Professional bee-keepers, the majority of them at least, produce extracted honey largely. Nearly twice as much of the latter can be produced as of comb honey, but at the same time it brings only about half as much in the market as comb honey.

Q. Can comb honey be manufactured by machinery so as not to be told from genuine?

A. No, this is impossible. Comb honey has never been made by machinery and never will be, in spite of many newspaper statements and magazine articles to the contrary. The A. I. ROOT COMPANY, in order to show clearly that there is no such thing as manufactured comb honey, has, for nearly thirty years had a standing offer of \$1,000.00 for a single section of comb honey made by machinery that so nearly resembled the natural product as to deceive the average person. The fact that no one has ever been able to claim this money, shows conclusively that there is no such article on the market. There are plenty of reasons why such a feat would be impossible, but lack of space forbids the mention of them here. See A B C & X Y Z of Bee Culture.

Q. When extracted honey granulates is that an indication that it was adulterated with sugar?

A. No, for almost every kind of pure honey will granulate or crystallize in time. Some kinds of honey produced in the South will crystallize in only two or three days' time, but usually from two to six months is required. The honey may be returned to the liquid state by heating it gently in hot water. For the very best results the water surrounding the dish of honey should be no hotter than 140 degrees. A temperature much higher than this will give the honey a burnt flavor.

Q. I have some combs that contain granulated honey that I cannot extract. What shall I do with them?

A. Soak them in warm water and place in a super above a strong colony. The bees will usually clean out the cells although the combs may have to be wet two or three times before the work is finished.

Q. What is the reason my bees will not go into the supers and store honey?

A. Several causes might be assigned. First, no honey coming in, or at most a very light honey-flow; second, a colony too weak. There must be a large force of bees to store enough honey to fill the brood-nest to keep up brood-rearing, and yet leave a surplus to be stored in the sections or extracting-combs above. Third, sometimes a strong colony in a good honey-flow will not enter the super. In that case, if other bees are storing, an examination of the brood-nest may show that the brood-frames in the colony that sulks are "honey-bound" — that is, honey has been stored in brood frames until the queen has been compelled to stop laying. To remedy this, uncap all the combs and put on some sections from some other colony, which the bees have already partly drawn out and filled. This will usually have the desired effect.

Q. How can finished honey be removed from the hive?

A. The old way was to set the hive over a hole in the ground in which there was some burning sulphur, and after the bees were all killed to take the honey out with a spade. The modern bee-keeper as mentioned above, does not remove the honey the bees need but simply takes the surplus. A board containing what is called a bee escape, is placed between the super and brood chamber and the bees go down through into the lower part where the brood is and cannot get up again. In a few hours they are all out of the super and the surplus honey can then be removed without the knowledge of the bees. There is then no uproar, no stings, no confusion and no trouble of any kind.

Q. What is done with bees during winter?

A. If the colonies are not already in double walled hives the space between being filled with shavings or leaves, a winter case may be put over the regular hive and packing material put in after which a water proof cover is put over the whole thing; or the colonies may be wintered in a cellar which is kept reasonably dark and even in temperature. Except in the northern part of the northern states, however, it is usually safer to winter on the summer stands in double-walled hives or other hives especially packed for the cold weather. For further particulars, see A B C & X Y Z of Bee Culture.

Q. What is a winter nest?

A. It is a space of empty cells in the central combs three or four inches below the top bars. Bees if left to themselves will form this clustering space in the empty cells so that they can get closer together for warmth. If this winter nest is disturbed in the rearrangement of combs, it must be put back.

Q. How do we determine when a colony is strong enough to go through the winter?

A. The answer to this question depends on

the latitude or climate, the kind of hive and whether the bees are to be wintered outdoors. In a warm climate fewer bees will be required than in a cold, but more stores will be needed. In a cold climate for outdoor wintering we figure on not less than 7 frames covered with bees. For cellar wintering 4 or 5 frames will answer but more will be better. In the extreme south two or three frames of bees may be enough providing pollen and honey can be gathered in late winter. In all cases, it is better to have a hive full of bees; but in that case there should be 5 or 6 frames of stores or the equivalent in 8 or 10 frames.

Q. How can I stimulate brood rearing in the fall when queens ordinarily stop laying?

A. Queens two or three months old will lay when queens one or two years old will not. We usually advise having young queens in the fall, not only because they stand the winter better, but because they supply the hives with a force of young bees, so necessary for successful wintering. But old queens can be made to lay to some extent by feeding outdoors a sweetened water consisting of 15 parts of water to one of granulated sugar. This mixture should be thoroughly stirred, and then put into Simplicity or Alexander feeders, about fifty yards from apiary. The feeders will need to be filled two or three times a day, depending on the number of bees in the yard; but do not give them more than they can take up in a day, for in warm weather it will sour.

Q. What is the best way to unite bees in the fall?

A. If there are two colonies neither of which have strength enough to go into winter quarters, the weaker should be united with the stronger. Ordinarily, the old bees of the moved colony will go back to the old stand. To provide against this, proceed as follows: In the cool of the morning, or better, the last thing at night, smoke the bees thoroughly that are to be removed. Pound on the hive considerably, so that they will be demoralized. Carry the hive and set it down beside the other and shake the moved bees in front of the entrance of the other hive. If they are pure Italians, no smoke will be required. If they are dark hybrids or blacks, it may be necessary to examine the bees in fifteen or twenty minutes to see if they are fighting. In this case, smoke the hive thoroughly and shut it up. After they are nicely united rearrange the combs to form a winter nest.

Q. In uniting, what should be done with the queen?

A. Where there is no choice especially if neither queen is valuable, the two lots of bees can be united, and, as a rule, one of the queens will be left and the other destroyed. But where there is a choice, which is usually the case, the better one should be caged and introduced, and the other destroyed or put into some other colony.

Q. What is meant by balling a queen?

A. When bees are hostile toward a queen, they will cluster about her very thickly, sometimes forming a ball of bees anywhere from one to three inches in diameter. Every bee in the ball seems to be struggling to get at her to sting her. Unless she is released she will either be smothered to death or stung. To release her, use plenty of smoke, blowing it on the ball, until the mad bees disperse and then pick her up and cage her. Another way is to dip the ball in a pail of water, when the bees will immediately float away from her.

Q. If colonies die through the winter may new swarms the next season be put in the same hives?

A. If the bees did not die because of the result of disease, but simply starved or chilled, there is no harm in putting new swarms in these same hives. By careful attention, however, the winter loss may be reduced to a very small percent.

Our Homes

A. I. ROOT.

I was a stranger, and ye took me not in.—MATT. 25: 43.

Be not forgetful to entertain strangers, for thereby some have entertained angels unawares.—HEB. 13: 2.

And if ye salute your brethren only, what do ye more than others? Do not even the publicans so? —MATT. 5: 47.

Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world; for I was an hungered, and ye gave me meat: I was thirsty, and ye gave me drink; I was a stranger, and ye took me in.—MATT. 25: 42, 43.

Mrs. Root has quite a fondness for reading *old* books—those, for instance, that she and I read together when we were first married, and she persists in reading them again, even when I tell her there are new books just as good, or even better; and therefore when we started on our two-days' trip to our Florida home she laid out to read on the way an old book entitled "Knight of the Nineteenth Century," by E. P. Roe, as she has always had an especial fondness for all of Roe's books. Well, one day when I began to get a little tired of looking at the landscape I happened to glance at the open book I had read perhaps 50 years ago. At that date I was not a professing Christian; and although I found the book entertaining I fear I did not get hold at all of the great point the author had in view when he tried to show forth what is *real* Christianity, or, if you choose, what the real Christlike spirit *means*. The leading character is a young man who, through faulty bringing up, "went to the bad." He tried to turn over a new leaf and atone for his errors, but everybody seemed to make sport of his efforts to retrieve, and he became discouraged and went down again, lower and lower, until even his own mother lost faith in him; and when he was truly converted, *she* seemed to be more skeptical than any one else. When he tried to follow the teachings of his Savior, his rebuffs and discouragements from a cold and unfeeling outside world were almost unbelievable, did we not all see this same thing still going on almost everywhere. I was particularly impressed with his reception at one of the fashionable churches, where a kind friend had induced him to attend. I shall have to confess I have for some time been feeling troubled about the final outcome of so much money and *fashion* that is becoming so great a part of our town and city churches. In my previous Home paper I mentioned a pastor so eloquent and gifted that he was offered and accepted a much larger salary, while he was at the same time *guilty of murder*. What shall become of us if we continue to permit "grafters" and hypocrites to get in among the clergy?

After finishing the book, I told Mrs. Root I wished every member of GLEANINGS could read this old book, by one of God's faithful and devoted servants (she got it by mail of Sears, Roebuck & Co., for 33 cts.). Well, while having this whole matter in mind

you can imagine with what interest I read the following letter:

Mr. A. I. Root:—I have just this hour received your journal; and since your department, Mr. Root, is the very first and often the only thing I am reading in GLEANINGS I notice the letter that Mr. Klabuhn, of Conneaut, O., has written you, and your reply to it. (See page 707, Nov. 15.) I am a German myself, and this is only the sixth year I have been in this country. In other words, I am another "stranger" to you Americans.

Now, before I proceed any further let me thank you for the generous spirit with which you answer my landsman's letter. I pay you my highest respect for your nobility of mind, since Mr. Klabuhn must inevitably, although without intention, have slightly offended you. The reason for Mr. Klabuhn's opinion is, no doubt, his experience.

I simply love to read all your talks; but I must confess that I have never been to church in this country—not because I don't believe in God and his church, but simply because I have not yet found a human being here in America who would practice a true neighborly or Christian spirit. All with whom I come in contact have shown me, beyond the shadow of a doubt, that they can spare me some of their time only if there is some *advantage* in it for them—even ministers, every one of the few with whom I come in touch.

When I landed, six years ago, I could not speak English, and I began right away to study the language. After a while I became a member of the Y. M. C. A. of Providence, R. I. There I was, sitting all alone, and none of your young men of that organization spoke a social word to me, and my heart was yearning for social intercourse. Mind, Mr. Root, they did not yet know my way of thinking. They simply left me alone, and literally discouraged me from getting acquainted with them. I think they felt too important to associate with a foreigner.

A little later, again, I went to Boston to find work in that city; and there, being a member, I frequented the Boston Y. M. C. A.'s reading and other rooms, and there I met with the same fate. Only one lady clerk and one gentleman clerk of that institution proved an exception, inasmuch as they were really friendly to me, and gave me information quite cheerfully. You know both the lady and the gentleman were studying German, and tried to get me talking German with them, which I, by the way, was glad to do.

The Boston Y. M. C. A. maintains a house orchestra which practices on certain evenings, and plays Sunday afternoons for about an hour for the benefit of the other members. Now, since I am a violin player I offered to join this orchestra. Well, of course they let me play with them; but do you think, Mr. Root, they would let me get acquainted with them in a personal way? Not much! I felt exactly as if I were coming, playing, and going without being noticed at all. And they were, all of them, highly respectable members of that excellent organization. How I felt, you may or may not imagine. But all those and other experiences shattered my confidence in humanity and my belief in the sincerity of the men who pretend to be Christians. I do not wish to flatter you, Mr. Root; but I think you are one of the very few exceptions which do exist, because your work proves it to some extent. I firmly believe in our Lord, but I do not visit the church, and I often feel that I am wrong in not going to church.

Now, I wrote you all of this to show how one may be educated up to the point where Mr. Klabuhn seems to be. He says in his letter, "I am an *old* German." Now I am a *young* man—31 years of age; let me live another 20 years, and if, during that time, I meet with the same conduct of men, I shall, perhaps, suffer morally for it. Or will those suffer who made the misanthropist of me?

As it is, I am still wavering, and can not for the life of me decide regarding this vital question—I, e., whether I should visit the church and pretend to believe that my fellow-men are Christians, when, right down in my heart, I *know* they are *not*.

Plymouth, Mass., Nov. 22. BERNHARD KUNZ.

Dear friends, *you* especially who love the

Lord Jesus Christ, I hope you will read the above plaintive letter again and again, and then I hope you will go out "into the by-ways and hedges" and see if there are not some near you that you have overlooked, as our good friend describes. You who belong to the Y. M. C. A., look around and see if these things are true in *your* locality. Remember who it was that said, "Inasmuch as ye have done it unto the least of one of these my brethren, ye have done it unto me."

Now I want to suggest gently to our good brother who writes the letter that possibly there is at least just a little tendency to uncharitableness on his part. Are you not, my good friend, a little too modest and oversensitive? Are you sure you are doing your part? and is it not possible you are a trifle hard to get acquainted with? I want to quote right here something from the *Sunday School Times* that has done me a lot of good:

THE DEFEAT OF INJUSTICE.

No one can ever afford to think about any injustice he receives. It is disaster and destruction to do so. It is like deliberately lifting a glass of poison to our lips and swallowing it. Injustice inflicted upon us never harms us until we dwell on it. While we ignore it, and do right, it is powerless against us. When we begin to turn it over in our mind, it starts its murderous work upon us. It soon exaggerates itself, blinds us, rankles, inflames, embitters. It breeds self-pity, which quickly reduces us to a condition of worse than helpless uselessness. Jesus paid no attention to the awful injustices of his lot. We can not afford to do other than he did, with our lesser injustices. If love is our master-passion, thinking no evil and bearing all things, we shall live emancipated from the misery of dressing our own wounds. Such wounds heal quickly when we are lovingly busied with the needs of others.

The above sounds a little extreme, I admit; but I am sure it is God's message, nevertheless. In troubles of this kind we need to exhort strongly the parties on *both* sides to wake up and be ready to go a little more than half way. The editorial above* does not very clearly define the difference between personal wrong and a wrong against community; but the distinction is implied. I know what it is to dwell on some indignity or abuse until I am kept awake nights; and I know it is true that, if dwelt on, such things grow and enlarge, and finally spoil one's peace of mind. My father for several years was unhappy because a line fence encroached on his land. The surveyors told him the fence *was* over on his territory without question, but advised, as it had been there so many years, to let it rest to save quarrels and possibly a lawsuit with a neighbor; but because the surveyor who gave this advice belonged to our church, father had his own name taken from the church-roll, and could talk about and think about nothing else. Mother and the older children, the pastor of the church, and the deacons pleaded with him; but he persisted, and quoted, "right is right, and wrongs no

man," until one Sunday I persuaded him to go with me to a mission Sunday-school I was conducting in one of the worst points in our neighborhood. A lot of nicely dressed little girls and boys recited texts from the platform, and the zeal and enthusiasm of the whole school were truly inspiring. On the way home I asked him if such a work was not far more important than the value of a little strip of land of less than an acre. He assented, and gave me his promise to drop for ever the line-fence quarrel, and kept his word, went back to his church, and died at peace with God and with all his fellow-men.

HOW TO SUCCEED IN JOURNALISM, ETC.

I wonder how many of the editors of the fifty or sixty poultry-journals that come to our office by way of exchange read *my* writings. Well, I hope they will read *this*, even if they do not read what I say about poultry. While there are many good things to be said about the poultry-journals, there is one great and grievous fault with most of them, and a matter that can be easily remedied. It wants a little push and gumption, getting up early in the morning, or something of that sort. It is this: These journals are allowed to go out to the reading public without being inspected and corrected. I refer particularly to the typography. For instance, the printer or compositor will pull out a line to make some needed change, and then he puts it back without getting it in the proper place. Sometimes it will be at the bottom of the column, and sometimes it will not be found anywhere. He evidently forgot to put it back. The result is that the reader, when deeply interested in some article, finds a line gone so as to make the whole thing nonsense. I often spend a good deal of time in going down the column to find the missing line somewhere, where it makes another jumble. Now, this is a stupid trick of the one who puts the lines into page form to be sure; but he is not *altogether* to blame. Every journal or periodical of any kind that hopes to succeed should have somebody who is conversant with the subject-matter to read over carefully every bit of matter before it goes to press. This person or expert, which he ought to be, should be trained to note every letter upside down, bad punctuation, bad spelling, or any thing of that sort, so that, when the periodical meets the eye of the one who pays his money for it, it will be clean, and clear up to date. Our high-priced periodicals of wide circulation have two or more proof-readers in order to be sure that no blunders are allowed to pass.

Now, some of you may think this is a small matter; but that is another "typographical error." Leaving out a line as I have mentioned, bad spelling, and bad punctuation, stamp a periodical at once as second-class or not strictly reliable; and if the matter is not mended the journal soon fails for lack of patronage. When GLEANINGS was first started, nearly forty years

* Have we any other periodical whose editorials occupy such a high moral stand as the *Sunday School Times*? And is not the above sentiment characteristic of this same clean home Christian sheet?

ago, I realized the importance of this very thing; and under no circumstances was a single number allowed to go to press before I myself had carefully scanned every page and every line. I sat up nights and got up early in the morning; and when I was obliged to leave home, proofs were mailed me, and a boy often rushed over to the cars just as I was getting on, to give me a proof-sheet which I corrected on the train and mailed back. The reason why GLEANINGS was a success from the very start, and kept increasing and spreading every year for almost forty years, is just because we have taken such scrupulous pains to have it clean, correct, and reliable; and I am glad to add that perhaps no other one has stood by me and helped me in this work as has my good friend W. P. Root, who is now taking down these words stenographically. He has been my right-hand man in this effort to have our journal fully up to the standard of our first-class magazines for over thirty years. Just a few days ago I laughingly told some of our friends in the printing-office that I had for the first time in my life found our old friend at fault in spelling; but a more careful investigation showed that he was not entirely at fault after all, as the mistake was in the choice of a wrong word.

And now I wish to say again to the editors of the poultry-journals, this one thing I have been talking about may turn the scale between success and failure. If you expect your respective journals to win a place among the journals of our land you must have them clean and readable. I know it takes good, earnest, faithful work, early and late; but that is the price of success, and the only price.

By the way, with the present enthusiasm for poultry a new poultry-journal starts about every month,* but I am sorry to add that a poultry-journal dies about that often. So far as I know, there is not a single poultry-journal published at the present time in the whole State of Florida, with all its possibilities. One was started a few years ago, but it failed, principally, I think, for the very reason I have mentioned.

I am pleased to add, in closing, that our foreign journals are beautiful specimens of accurate and fine mechanical work; in fact, it is rather proverbial that the English, especially, never permit any thing to go out to the reading world unless it is first-class in regard to typography; and they really have some reason for calling us, as they often do, "a lot of shiftless Yankees."

CHUFAS, SOY BEANS, DANDELIONS, PARCELS POST, ETC.

Mr. Root:—I have read what you say on pages 608, 609, on soy beans and chufas for chickens, etc. I have never succeeded in getting my White Wyandottes to eat either soy beans or chufas, and

*Perhaps you will excuse me for saying right here, that during the past forty years a dozen or twenty bee-journals have been started; but sooner or later most of them have gone under, principally because of their carelessness along the line I have mentioned.

have offered them on a few occasions. I have had chufas dug up and lying on the grass two or three weeks, with alternate rain and sunshine, where the chickens could help themselves (sixty, old and young), and have not missed one nut.

You quote an advertisement of soy-bean meal, and seem to infer that it is merely soy beans ground up. I believe this meal is a by-product from the soy-bean oil-mills of China or Manchuria, just as our linseed meal is of our linseed-oil mills. This meal is imported very largely in Europe for feeding stock, as our linseed meal is.

You say chufas, like other nuts, are rich in protein and carbo-hydrates. You should have said, rich in protein and fat. Chestnuts are, I believe, the only nut rich in carbo-hydrates, while nearly all are rich in protein and fat—especially the latter.

I notice you are getting out a booklet on buckwheat. I should like to suggest that you get some one well informed on the subject to write on the use of buckwheat for green-manuring, killing persistent weeds, and as a nurse crop for sowing alfalfa, crimson, and other clovers. I have seen it advised very strongly for the latter purpose—in the *Rural New-Yorker*, I believe. Summer is deemed by many the best time to sow alfalfa, red and alsike clover, and crimson clover can be sown only then.

I note in *Ohio Bulletin No. 207* that cotton-seed meal is rated on the favorable side as stock feed; and in my reading I notice a flour is being made from cotton-seed for bread-making. We have need of just such a product for mixing with our one-sided acid-producing white flour to make healthful bread.

Another thought on buckwheat. May it not be sown early, allowed to blossom for the bees to gather the honey, then turned under, and another crop of buckwheat sown for grain, honey, and as nurse crop for clovers? Too much can hardly be known by bee-keepers about buckwheat and clovers.

Would it not be feasible to sow buckwheat in the buckwheat belt, sowing alsike at the same time, then let the bees gather the buckwheat nectar, you harvest the buckwheat, then let the bees gather the alsike nectar the following June, cut a crop of hay, possibly a crop of seed, then repeat the process, getting two crops each year, and two gatherings of nectar, while enriching the land with nitrogen at the same time? I believe it can be done, and bee-keepers are the ones to do it. Buckwheat is quite profitable where conditions are favorable, and alsike for seed is very much so.

As stated above, I have about sixty White Wyandottes, and can not notice that a piece is missing from a single leaf of the dandelions growing all around my grounds. Possibly the reason is that my chickens have full liberty, and thus may obtain what they like better—insects, grass, etc. They do eat great quantities of grass, I know, as I see them doing so, much of the time; and a hawk killed one and tore open its crop, which seemed to be stuffed with grass solely. Is it not likely that your Leghorns found what suited them? I am very fond of dandelion greens, and consider them healthful.

I note you advise cooking ground wheat thoroughly before eating. I believe this to be an error. It is apt to encourage too rapid eating, and cooking seems to necessitate the use of sugar to some extent, and this, I feel certain, is wrong. Our nutrition scientists have found that the average American dietary is about 17 per cent protein, 25 per cent fat, and 58 per cent carbo-hydrates—more protein for growing children and those at hard labor, and less for the aged and inactive. By looking at a table in my letter published on p. 396, 1910, you will see that wheat has protein, 11.1 per cent; fat, 1.7 per cent; carbo., 75.5. Granulated sugar is 100 per cent carbo-hydrates. Thus wheat is 30 per cent above a balanced ration in carbo-hydrates, and every grain of sugar makes it more so, while it has only about one-tenth the fat it should have. Therefore butter or cream, not sugar, is the proper thing to add to help balance it. Nuts, cheese, or other foods rich in fat or protein, should go with wheat; sugar, never. Rolled oats are much better balanced, but need fat to balance. Americans consume an average of about \$5.00 worth of sugar per capita per year, and great quantities of molasses and syrup in addition. If this were reduced to one dollar, and the remainder expended for milk or butter or cheese, or even for honey, we should be infinitely better off.

I note what you say about parcels post. Too much can not be said for this great boon to our producers and consumers. The middlemen are the

only ones that would be hurt. The Postoffice Department is run as a political machine, to give fat offices to henchmen at immense expense. About ten million dollars could be saved annually by abolishing the salaried postmasters, leaving the assistants to do the work as they now do. This would also greatly benefit the people by removing and quieting the many disturbing, offensively partisan politicians. I know a postmaster who has a business of his own where he may be found six or eight hours a day. He drops in at the postoffice two or three times a day, usually, and spends the rest of his waking hours at the club. About the hardest work he does at the postoffice is drawing his salary of \$200 a month. It costs me 16 cents to send a pound of laundry to the agent at the postoffice nearest my own, two miles away. A 300-lb. man with a 150-lb. trunk and a 50-lb. suit-case may go on the same train for 5 cents. Is that good business management? I can send the pound package to New Zealand, 10,000 miles, for 12 cents. Yet the government forbids the railroads charging more for a short haul than for a long one. The *Farm Journal*, published in Philadelphia, price the paper just double for delivery in Philadelphia that they price it for delivery in San Francisco, Alaska, or Mexico. Is that business? A law of the United States forbids any one carrying letters or packages (mailable) between postoffices; yet the express companies are allowed to carry nearly all daily papers, and millions of other packages under four pounds, greatly injuring the government. If a common citizen attempts to use a postage-stamp a second time it may cost him a heavy fine and imprisonment; but the express companies may defraud the government out of millions of dollars with impunity.

If you have not seen the document on parcels post by Hon. David J. Lewis, Cumberland, Md., you should ask him for a copy and read it. His is the best solution of the parcels-post question, I believe. He proposes to buy the express companies for some forty millions of dollars and run them at cost to the people. He shows that the express companies have contracts with the railroads to carry expressage at about $\frac{3}{4}$ cent a pound, while mail costs the government over 4 cents. Most of the parcel-post advocates talk 8 cents a pound, which is prohibitive, and of no value to producers or consumers of one pound in a thousand. Personally I would not be in favor of paying the express companies for their charters or contracts, deeming them thieves, robbers, and law-breakers; and thieves have no right to stolen property. But it would take years of litigation to oust them, and it would be cheaper for the people to buy them out and get the benefits of low rates of transportation. By all means write for a copy of Mr. Lewis' document and read it, and then tell your readers to do likewise. It is an eye-opener by a man who has studied the question thoroughly, and written ably on it. The document is free, Mr. Lewis being a Congressman.

A READER.

My good friend, there are two reasons why your chickens decline soy beans, chufas, and dandelions. First, they are not *hungry* for green food, like the flock belonging to my daughter. Second, they have not been *educated* to eat these things. This whole matter comes right along with the statement from so many that cattle and horses will not eat sweet clover. They have not become acquainted with sweet clover. Domestic animals, like human beings, become accustomed to a certain diet, and very often think they can not live on any thing else. Changing the food of a lot of chickens to something they are not used to will often stop their laying. This has often been commented on. I feel sure you can teach your chickens to eat chufas, soy beans, and dandelions. Down in Florida, where green stuff is often scarce, the poultry seem to eat every thing green greedily. As an illustration, it is of no use to try to grow potatoes if the chickens can get at them. They will eat

off the tops and then scratch out the tubers and eat them. A hen with chickens is especially expert at that kind of work.

The book we sell on green manuring mentions particularly plowing buckwheat under, two crops, one right after the other. Crimson clover and alsike both do splendidly when sown with buckwheat in July or August.

Parcels post is coming; and if our great nation of people keep urging, it will come all the sooner.

I agree with you in regard to the excessive use of sugar. My health is very much improved since I have given up sugar for so long a time that I have almost lost my appetite for it. Sugar on fruit or any fruit sauce spoils it for my use. Very likely you are right about using uncooked wheat. That is Terry's great forte, as you may recall.

ABSCONDING SWARMS, AND SOMETHING ELSE.

The following is from our good friend Calvin S. Hunter, of Seven Mile, O., the man I visited, and which visit I reported on these pages—the man whose hobby has been, during a good long life, *more* corn and *better* corn. He is also something of a poet as well as a most earnest Christian, as you will gather from the little poem at the end of his letter.

Mr. Root:—I am sure you will be glad to hear how the four swarms of bees that came to me last season in five days are coming on. They were surely welcome, for we are very fond of bees, and had none. We think that the "streak of luck" was to include five swarms in five days. But one was lured into the hollow of a great maple near by. They have done remarkably well, so that no neighbor who needed honey has been disappointed, and our bee inspector says they are the nicest black bees he ever saw. I have hopes that my luck has not entirely changed; for, although I have tried to prevent swarming, yet late in May, this year, one of the swarms showed signs, and so I got a hive ready; but before I got away, here came a swarm rolling like a balloon down the lane from the west gate, and it just covered the lid of the hive I was fixing, so I feared the queen was outside; but it was all right.

I send you some of my verses, entitled—

THAT NEW LIFE.

We are nearing that home where our loved ones must sleep.

And the friends are so weighted with sorrow;
But though hearts are bowed down like the willows
that weep,

Yet we know we shall meet them to-morrow.

Refrain.

For they'll watch and they'll wait at that beautiful gate;

They will cherish fond memories ever;
Tho' life's sun disappears in the mists of the years.
Yet that new life, it fades not—no, never.

Oh! we're fast passing through this dark valley of tears;

Each kind friend that we lose gives us warning
That it may be to-day, and can be but few years
Ere we all greet that heavenly morning.

Then we'll keep a brave heart while forgetting our fears.

Tho' earth's ties ruthless Time may soon sever;
For life's sun it sinks fast when 'tis weighted with years.

But that new sun will shine on for ever.

Seven Mile, O., July 18. CALVIN S. HUNTER.

Gleanings in Bee Culture

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Editorial

THE Ohio State Bee-keepers' Convention will be held in Springfield, Feb. 21. Further announcements later.

MR. GEORGE S. DEMUTH, now of Washington, D. C., in the Bureau of Entomology, calls our attention to the fact that the picture on the outside cover page of our Christmas issue was taken in the apiary of Mr. S. D. House, at Camillus, N. Y.

BULLETIN No. 75, entitled "Miscellaneous Papers on Apiculture," has just been issued by the Bureau of Entomology, Washington, D. C. It probably can be obtained by any bee-keeper by applying to the Bureau of Entomology or to the Superintendent of Documents. This bulletin comprises "The Production and Care of Extracted Honey," by Dr. E. F. Phillips; "Methods of Honey-testing for Bee-keepers," by C. A. Browne; "Wax-moths and American Foul Brood," by E. F. Phillips; "Bee-diseases in Massachusetts," by Burton N. Gates; "The Relation of the Etiology (Cause) of Bee-diseases to the Treatment," by G. F. White; "A Brief Survey of Hawaiian Bee-keeping," by E. F. Phillips; "The Status of Apiculture in the United States," by E. F. Phillips; "Bee-keeping in Massachusetts," by Burton N. Gates. It contains 125 pages the size of this. While these papers have been published heretofore, the various editions have been exhausted, and this bulletin is a compilation of them all.

A SEVERE COLD SPELL.

THE fore part of winter was mild all over the United States; but during the fore part of January the weather turned severely cold in most of the Northern States, with a driving wind. Even in semi-tropical California, the temperature has gone down to freezing and below; and there has been a desperate fight on the part of some of the orange-growers to protect their groves. This they have been doing by building fires among the trees, thus generating a large amount of smoke. The same thing has been done in Florida. At this writing, Jan. 11, there is no letup in the severe cold in any portion of the United States. It has not and probably will not continue long enough to do any

great damage to the bees. The clovers will not be injured, because there has been a heavy fall of snow over most of the North. Lots of snow is always favorable to clover.

THE CIRCULATION OF GLEANINGS BOOMING THESE DAYS.

GLEANINGS has been late for a couple of issues back; and for this issue, perhaps, we shall have to beg the indulgence of our readers till we can catch up in our printing department. We have just purchased a new printing-press, which, together with the two big machines* already in, ought to enable us to catch up very soon. We have recently installed a new linotype, or type-setting machine, and all together the printing-house of GLEANINGS is "as busy as a bee," even if it is in the dead of winter and the bees are all asleep.

New subscriptions and the renewal of old ones have been coming in with a big rush. Considering the poorness of the past season, and the bitterly cold weather we are now having, we are truly thankful for the generous support of our friends.

WINTERING BEES IN CLAMPS.

In certain parts of the northern States the custom of burying hives of bees in the ground during the cold weather is very prevalent; but lest the uninitiated should get the idea from our picture on the cover of this issue that this plan solves the wintering problem universally, it may be well here to mention some of the restrictions which, while they have been given before, can nevertheless bear repeating.

The soil as shown at the left, in the picture, is sandy. This is a vital requirement; for in a clay soil the combs in the hives would "sweat" and become moldy, and the bees would dwindle away rapidly because of the impure air, there being no chance for escape of moisture nor for the influx of fresh air, as the clay is not porous.

Even with a sandy soil, if the winters are open with considerable warm weather when

* All of them are four-roller book-presses, and two of them have automatic Dexter feeders. In fact, we have one of the best-equipped printing-shops in the United States.

bees may fly, we question very seriously the advisability of wintering in clamps or trenches. Under such conditions the double-walled hive is the best solution of the problem; for the results secured are so uniformly satisfactory when other conditions are favorable that no better plan is needed.

This picture on the cover is another one made from one of Mr. Hutchinson's old negatives. Our older readers will recognize it as having been used before; but we considered it good enough to use again.

BEST PRICES JUST BEFORE CHRISTMAS. MARKET BECOMING MORE STABLE.

THE statement has often been made that prices on honey are liable to slump after the holidays, and that it is advisable to sell as early as possible. While that is true to a great extent of Western comb honey, a change is beginning to take place. Western comb is liable to granulate, and dealers, therefore, feel that it is advisable to sell it before this takes place. But there are some evidences that go to show that the market is becoming more and more stable on extracted. While prices reach their maximum just before the holidays, honey in the liquid form will maintain its level to a great extent, not only during the early fall, but during all the winter. In early spring the prices begin to sag, in anticipation of the crop just ahead.

To a certain extent also it is becoming more and more true that Eastern comb honey is becoming more stable, the reason for this being that it is not apt to granulate till toward spring.

THE LEGISLATIVE COMMITTEE OF THE NATIONAL BEE-KEEPERS' ASSOCIATION AT WORK.

THE Legislative Committee of the National Bee-keepers' Association, consisting of Mr. W. A. Selser, Mr. N. W. Saunders, and Mr. A. T. Cook, met in Washington on Dec. 12th to consider plans for the ensuing year. They spent considerable time in discussing national legislation, but at the time of their meeting decided to concentrate their efforts toward checking the rapid spread of bee diseases in the United States. While recognizing the fact that the Bureau of Entomology, of the Department of Agriculture, has rendered splendid service by spreading information concerning disease and its elimination, they felt that the Department should go even further; and to that end the committee, by appointment, called on Secretary Wilson, head of the Department of Agriculture. First, it is asked that the Secretary give his approval to a plan for reaching every bee-keeper in the United States, and placing before him information on the subject of bee diseases; second, that he authorize the publication of a bulletin showing the relation of bees to horticulture, and, third, another bulletin on honey as a food. The Secretary gave his approval to the second and third, but demurred on the first,

as he thought the government could not undertake to hunt up every bee-keeper in the country, because it was contrary to precedent, and because of the expense it would involve. The committee believes, however, that there is a precedent to warrant this procedure, and, if so, proposes to follow the matter up at a later time.

Since writing the foregoing we have received a letter from the Chairman of the Committee inclosing one from Secretary Wilson that will explain.

Mr. W. A. Selser:—Referring to your letter of December 13, with regard to the desirability of warning farmers against foul brood in bees, I beg to state that I have ordered the preparation and distribution of two press notices—one for distribution to newspapers in general, and the other for distribution to county papers, advising bee-keepers of the danger of the disease, and referring them to Farmers' Bulletin 442 on this subject. The other suggestions you make will be considered.

JAMES WILSON, *Secretary of Agriculture*,
Washington, D. C., Dec. 20.

Apparently the special committee of the National has not labored in vain.

THE NEW CONSTITUTION OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

AT the last meeting of the National, at Minneapolis, a committee was appointed to draft a new constitution. This instrument was drawn up and duly submitted to the convention. While that body had no authority to accept or reject it, it could and did recommend its adoption by the voters at large. The latter have now formally ratified it, and the new constitution is in full effect.

The membership fee, instead of being \$1.00, half of which went to the local organization, will now be \$1.50, one-third of which will go to the local society. It was found that \$1.00 membership fee, only half of which went to the National, was entirely inadequate to carry on the work of the organization. While it may be an inappropriate time to raise the membership fee, the committee felt that the old organization could not longer continue on the old basis.

The new constitution further provides for closer affiliation with local societies, and each local is to send its own delegate or delegates to the National convention, wherever it may be held.

The new board of directors, instead of consisting of twelve members, is now reduced to five. The old number was too large and unwieldy, and the number five is small enough so that the board can meet together and thus properly plan the work of the organization.

Under the new constitution, there probably will not be another National convention before a year from the coming February.

Two cities—Cincinnati, and Washington, D. C.—are vying with each other for the next convention of the National. Cincinnati has the prior call; but Washington, whose invitation was extended later, sets up the claim that, if the convention goes to the national capital, it will have consid-

erable influence with the officials of the government, to the end that bee culture may receive further recognition, and with Congress, if it is in session, and, moreover, it can have distinguished men from the Department of Agriculture to deliver addresses at the convention. We understand that the new board is carefully considering the claims of the two cities.

ARE BEE-KEEPERS MAKING A COSTLY MISTAKE? A WARNING; MARKET PRACTICALLY BARE OF COMB HONEY, WITH A BIG SUPPLY OF EXTRACTED.

SEVERAL times during the last three or four months we have called attention to the fact that the production of comb honey was being dropped by many producers in favor of extracted. Just before he died, Mr. W. Z. Hutchinson, having observed the same fact, cautioned his readers in the *Review* not to make the mistake of going to the other extreme, adding that he feared the time would come when comb honey would be a scarce article, and the market would be glutted with extracted. The prediction has been all but verified. Now that the season is over, we are in position to know pretty nearly where all the comb honey is that is left; and we can assure our readers that the supply is exceedingly limited. The big buyers of the country are making inquiries as to where they can get choice comb honey; but aside from little lots, of inferior quality, they are unable to find any. Some three or four buyers have cornered some choice lots, and are awaiting an advance in price. There will be small lots here and there among retailers, but that will be about all. On the other hand, the supply of Western *extracted* honey appears to be large for this time of the year.

Our readers will remember that early in the season reports from the West were very slow in coming in. Many of them were misleading, and producers in some sections where, apparently, big crops had been produced were evidently holding back the fact. The reports from the West showed almost as much a shortage as those from the East. The result is, there is a big supply of Western extracted—mainly alfalfa and mountain sage; but the supply of Eastern white honey, both comb and extracted, is almost entirely exhausted.

There are two reasons to account for the great disparity between the production of comb and extracted the past year. First, breakages from shipment have disgusted many producers with the comb-honey business; and, second, the honey season throughout all the East, where comb honey is largely produced, was almost a complete failure. Eastern bee-keepers do not produce honey on as large a scale as those west of the Mississippi; and what they do produce is largely comb. On the other hand, the conditions in the West are almost exactly the reverse. Extracted honey probably forms from 75 to 80 per cent of all the honey produced.

One large buyer in the East, in talking with a representative of this journal, lamented the fact, and with good reason, that the honey reports in the bee-papers during the last year were misleading—at least so far as they related to the production of Western honey. "This has a tendency," he said, "to boost the market on all grades of honey, including extracted. The market on the liquid product began to soar, and buyers refused to purchase. Then there came the inevitable slump after prices had been boosted too high; and now the market is overstocked with extracted."

He then cited the case of a large producer of buckwheat honey who had a fair crop to sell. The general talk about the poorness of the season caused him to put his prices clear out of sight. Of course, no one would buy. He began to offer his honey at lower figures without a taker. Soon carloads of Western alfalfa and mountain sage, of a better quality, both in flavor and color, flooded the market; "and," said Mr. Commission Man, "our friend with his big holding of buckwheat would be glad to unload at any price—a sadder and a wiser man. This is not an isolated case, because some of the Western producers are finding it hard to unload."

One other buyer expressed himself most emphatically, saying, "You bee-journal fellows ought to be scored for letting some of these Western producers pull the wool over your eyes. Why don't you urge more the production of *comb* honey? If the facts as to the amount of Western honey had been given in the first place the general market would have been in much better condition."

While the bee-papers come in for a fair share of blame, perhaps, yet how are the journals going to get information when the reports of actual conditions are held back?

Referring to the first reason why bee-keepers are dropping the production of comb honey, it seems to us that almost every mail has brought some complaint about comb honey arriving in bad order, simply because it was carelessly packed. Producers who ought to know better continue to put up their goods in poorly made and badly designed shipping-cases; and, again, they often fail to ship in carriers, with the result that both producers and buyers are disgusted with the whole business. Extracted honey, however, can be shipped in barrels or cans, with comparatively little leakage or breakage. It is not injured by candying, and usually there is a fair demand for it.

But the scarcity of comb honey and its higher price should make producers wake up to the importance of producing more section honey. It will hardly be possible to get too much for the coming year. We never saw a time when fancy or No. 1 comb honey would not sell readily at good prices.

If the bee-keeper who reads these lines has reason to doubt our words, let him write in to the large markets and see how the demand now stands for comb and extracted. The fact is, brethren, we are confronted by a condition and not a theory.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THE COLOR of honey is lighter on high lands than low; in the north than toward the equator; on calcareous than on ferruginous soils; in a wet than in a hot dry season. A peculiar fact is that a mixture of two honeys is darker than either kind separate.—*Deutsche Imker*, 308.

F. DUNDAS TODD once criticised my pictures, and I've had it in for him ever since. Now's my chance. Nine of his pictures in last GLEANINGS are bad—very bad. They're nice pictures in other respects, but he made that poor fellow stand all the while he was doing his stunts instead of giving him a comfortable seat.

CHRISTMAS was a very bright day. At 1 P.M. cellar-doors were wide open, as they had been for days, both day and night; temperature in cellar, 49; outdoors, 30 degrees. At the wall furthest from the door I read fine print—easily. Bees had been in cellar 42 days. In four minutes two bees flew out. If the room had been closed up dark I suspect more would have flown out—not because dark, but because close. The moral is that bees in a cellar that have not been confined long will stand much light *if the air is pure*. Toward spring they will not stand light so well.

THE DISCOVERY that bees eject water from nectar while on the wing was a rediscovery by A. I. Root, says Claude Deshommes, *L'Apiculteur*, p. 456, the discovery having first been made by M. Babaz in 1868. [The question has been raised whether bees ever discharge water on the wing when gathering nectar or sweetened water from outdoor feeders. It takes a little careful watching before one can see this fine spray shot out from the bees; but when he once sees it, he is able to discover it in other bees as they start out on the final flight for the hive; and while we have not absolute proof that the spray is made up of water, the facts point very strongly that way.—ED.]

ABOUT that pie. Either the printer or I chopped the head off that last Straw, p. 4, and stuck it in as the fourth Straw. No matter. You seem to think, Mr. Editor, I haven't stuck close to the text. You're right. Let's get back to it. You said moths were liable to lay eggs in S. D. House's combs or his nice comb honey after either has been taken from the hive. I supposed his nice comb honey was in sections, so I ventured the guess he never had an egg laid in them after they were taken off, since the moths don't lay eggs in comb honey here after it's taken from the hives. J. E. Crane practically says they do with him. So you'd better cut me a piece of the pie. The question now is, whether my moths or Bro. Crane's are the exceptional ones. If it's the general rule, and especially if it's the rule with Bro. House, then bring on the rest of

the pie. [It is probably true that the moth-miller is a more serious pest in some localities than in others. You of course know it is unknown in Colorado, and, if we mistake not, in all other high altitudes.—ED.]

ON FIRST READING what Arthur C. Miller says, page 755, I said to myself, "I never thought of it before; but it seems clear that those wing-stubs must hinder the queen about laying." But on further thought I recalled the thousands of queens I have had with both wings on one side cut off about half—fine layers, eggs placed regularly in cells, no vacant cells, no superseding till two or three years old, and it didn't seem possible that clipping could do so very much harm. Isn't it just possible that the queen raises her wings when about to lay, just as any other lady raises her dress when it is in the way? Wouldn't the wings of a queen show wear if they should "slide" over the surface every time an egg is laid? We know that the wings of a worker become ragged with age, and I suppose that is from friction with the air. If three or four weeks' friction of the air makes the wings ragged, would not three or four months of the greater friction of the comb make the wings still more ragged?

LOUIS MACEY, p. 734, perhaps you don't fully understand my attitude. I think my queens average as good in their second year as in their first—perhaps better. When they begin to fail, I think the bees will supersede them, whether it be in the first or the fourth year. So I don't need to supersede a queen unless she is poor, no matter what age. If others have bees that are not so good in their second year, and the bees themselves will not supersede them, that's another story. Then there's one thing you and I can't get away from: A queen in her second year is forty times as likely to swarm as in her first year. That alone may be sufficient reason for some to requeen annually. But annual requeening and improvement of stock don't go well together. [There is one fact you have not mentioned in favor of a young queen; and that is, she will lay eggs in late summer or in the fall when an old queen can be coaxed to do this only with difficulty by stimulative feeding. We would say that colonies having young queens in the fall of the year stand a much better chance of wintering through, because their hives will have a large force of young bees raised late in the season. Too many times queens stop laying after the main honey-flow; and the old bees beginning to die off leave the colony too weak to be in good condition for winter. While it is true that some old queens are too valuable to kill, we are coming more and more to believe that the average beekeeper should aim to have young queens in his apiary.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

I do not think the editor's value of drawn comb an overestimate—page 699, Nov. 15.

An unusual number of fall dandelions bloomed here in New England, the same as at Marengo, Ill., and in Canada; but they were of little value to bees.

Slowly the value of honey as a medicine is becoming known and appreciated. I am not sure but another leaflet along this line would prove of great value—p. 644, Nov. 1.

Dan White is all right about ripening honey—page 684, Nov. 15. I find that honey ripened as it should be is very difficult to strain unless warm; and even a gravity strainer will work very slowly.

I think our friend A. C. Miller is a little off when he thinks smoke from cotton will, as a rule, irritate bees, as he claims on page 664, Nov. 1. Queer, some of the rest of us bee-keepers have not noticed it.

All who wish to improve their bees can not study with too much care the article by H. D. Tennant, page 651, Nov. 1. The science of breeding (and it is a science) is becoming better understood than formerly; and those who will may profit by such an article as Mr. Tennant has given us.

Our experience corresponds with that of the editor in footnote on feeding brown sugar, page 646, Nov. 1. A few years ago we fed two or three tons of raw sugar to bees as winter food, and they wintered fairly well; but we believe the best white granulated quite as cheap and much more satisfactory.

Dr. Miller tells us that Dr. Bethune told him that a young queen could be reared and fertilized in a hive with a very old queen, page 646, Nov. 1. I believe this a very important question; for if we may rear a queen in a hive having an old one, much time will often be saved by so doing.

That metal air-spaced cover, page 699, Nov. 15, is certainly a nice thing, especially for hot sections of country, as it combines protection from rain and sun at the same time; but I should think it would prove a plaything for the wind. I have seen nothing I like better than the telescopic cover covered with metal.

Our genial friend Doolittle tells on page 650, Nov. 15, of an old man whom the bees would not sting. I have heard, during the past fifty years, of several such, but have thought such statements should be taken with some allowance; but after reading what Mr. Doolittle says, I will doubt no longer.

I wonder if Mr. Doolittle can tell us why there is such a difference in the way bees treat different people.

Arthur C. Miller tells us, page 664, Nov. 1, that when bees ripen honey they spread out all they can; but if the night is cool they go to the brood-combs just to keep their feet warm, rather than to keep their brood warm. Well! there is where we don't think alike. I still think bees care more for their brood than the warming of their feet or the ripening of honey.

We are under obligation to Mr. Holtermann for a full description of his present method of wintering out of doors, and his reasons for it, page 695, Nov. 15. Where bees can be wintered indoors perfectly, as is sometimes the case, and you have but one yard to look after, and can be always on hand to attend to it I believe there is no better way. But as cellars run, I prefer the outdoor plan; and of outdoor plans none are better than the one given by Mr. Holtermann.

THE AVERAGE YIELD PER COLONY.

On page 654 Mr. C. C. Chase tells in a letter to E. E. Colein how he secured from 20 hives and 30 three-frame nuclei 4000 lbs. of honey in "*one of the worst seasons on record*," while one nucleus with a poor queen gave him no surplus. Now, the inference one would draw, especially a beginner, is that if one only had choice queens, and gave his bees suitable care, he could do as well in the worst of seasons—which would be wide of the mark. Now, we who have been in the business longer know that, in very bad years, we get no such yields of honey, although we may have good stock and give them the best of care. On the other hand, in a good year even hives with quite ordinary queens, if given care, will give very good results. It often happens that, while one section is very poor, another may be good. The past season was, as a rule, very poor (perhaps one of the worst), yet there were isolated localities where the yield of honey was good. One such I am thinking of where a bee-keeper secured some 8000 pounds of surplus, mostly comb honey, from 75 hives, and increased to 115 colonies. It is also true that, with a very poor queen, we can not get much if any surplus, even in a good year. If there are few flowers, or even if there are many that yield little or no nectar, we can not get much surplus with the best of queens and best of bees and best of care. The estimate of the editor of GLEANINGS as to the yield to be expected from apiaries with good care, as given on page 678, is very much nearer the mark, or will give us a much better idea of what to expect, and I am afraid his estimate is a little too high for the extreme North.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

With every thing prepared and ready whenever it may be needed for the coming season, the bee-keeper who is so fortunate as to be so situated can stare the season bravely in the face and feel as though he would be sure to conquer, while the go-easy kind of fellow who waits to see if it will really pay him to get any thing ready at all has apparently no feeling at all. The former will meet with success if it is to be had, while the latter will meet with—well, to tell the truth, we can't tell.



TEXAS HONEY.

To show how great is the demand for our honey in our great Lone Star State we need only mention that the entire Texas crop was practically sold by the end of August. There were several small lots here and there after that, but they went in a hurry as soon as they were located. There was a demand for more, but no honey to supply it. The Southwest Texas crops were sold out long before this time, and the Central Texas producers, whose crop comes a month or two later, were overrun with orders as a consequence, when their product was ready for market. The writer's experience this year was almost exasperating at times, the orders coming in some mails numbering from half a dozen to several dozen. It was impossible to put up the honey as fast as it was demanded. It took from two to three weeks to fill many of the orders, and at the end of the season some which were unfilled had to be canceled, amounting to more than our entire crop of 67,000 lbs. Since that time orders have come in for more honey every week, but there is none to supply.

This is not only true of this year, but 1910 and 1909 were very similar, except that the season closed later last year. However, the number of canceled orders each year for several seasons has run up into many thousands of pounds. This is not only our own experience, but that of many other large producers.

There have been a few Texas bee-keepers who have shipped in honey from other States in the West, but not many, for our bee-keepers are prone to stay by honey produced in Texas by Texas bee-keepers, and, as a rule, do not care to supply any other. Then it is a fact that many consumers do not like to buy honeys that they are not used to. This is especially true of honey with a decided flavor, such as the western alfalfa. Of course, some customers do not mind a different flavor, but on the whole we know from personal experience that a preference for the Texas honey does exist.

It would be interesting to know just how much honey is annually produced and consumed in the Lone Star State. We know that the output is enormous, but we have no reliable statistics to show what it is at

the present time. One fact exists, that the greatest bulk of this honey is consumed right here at home, and very little of it finds its way into the Northern markets. Oklahoma also is a great consumer of our product. This is due to the fact that, on the whole, that State and all of the northwestern portion of Texas are not adapted to bee-keeping except in a few favorable localities; and the consequence is, the honey must be procured from Central and Southwest Texas. The consumption of honey is great in both Texas and Oklahoma, the main product being bulk comb honey, which has for many years been strictly a Texas product.



FIELD MEETINGS IN TEXAS.

It seems that the Texas bee-keepers have been so busily engaged with their extension of apiaries and the business end of their following to such an extent that no time remains that could be profitably spent in gatherings or conventions and field meetings of bee-keepers at various times during the year. Why this is, we do not know. Texas had at one time as many as eight bee-keepers' associations; but there is only one to-day, and that is not as lively as it used to be. There is something wrong somewhere, whenever those who are engaged in the same line of work neglect the social side of their vocation as found in the conventions and other gatherings.

Texas is large enough to have half a dozen bee-keepers' associations, even if some of them be small in number. Nothing can do more good in furthering the progress of the industry, and nothing brightens up and helps the bee-keeper more than getting away from home and his work occasionally and rubbing up against some of his fellow-men who are engaged in the same calling. This is one thing that should receive more attention on the part of the bee-keepers of the big Lone Star State; and to start the ball rolling, and to begin the new year properly, the writer will be glad to hear from every bee-keeper in the State who is interested in having, at some early time, field meetings or similar gatherings of bee-keepers, at which important topics pertaining to the industry may be discussed. If too busy to write a letter, a postal card will do if the name and address are plainly written.

It may be well to take this opportunity to state that the writer received some time ago the appointment as Consulting Apicultural Expert of the Texas Department of Agriculture, at Austin, and all correspondence may be sent there if desired. All persons desiring information about bees or bee-keeping may obtain it by writing to the State Department of Agriculture. Hon. Ed. R. Kone is the Commissioner of Agriculture of the Department.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

Before beginning outdoor feeding, take a look over the yard to see that there is no robbing in progress.

Light rains followed by cold, heavy, drying desert winds describe the weather conditions so far this season.

E. M. Gibson's scheme for avoiding lifting, page 721, Dec. 1, is good; but I think mine is better, for a full super never need be lifted. I will give details later.

In the sixth item of my notes in the Dec. 15th issue I meant to say that the Tremont yard is 600 feet *above the oranges*, at an actual elevation of 2600 feet, since the oranges are 2000 feet above sea-level. In flying the three miles, therefore, the bees have to ascend 600 feet, or 20 feet to the mile.

Mr. C. H. Miller's account of the swarm of bees flying 15 miles over the desert is probably correct; but it is not likely that this distance was covered in a single flight. It is more than probable, however, that their present home was located by scouts at some distance from where they took up the last leg of their journey to it.

Quoting from p. 1021 of "Honey-plants of California," "The sage-worms in cloudy weather often become abundant enough to destroy much of the bloom." It has been my observation that they are most abundant in off seasons when the sage is less thrifty; but I have never observed that the weather had any influence, and am of the opinion that it does not.

I have never known an instance where a comb was mutilated by bees in order to afford room for drone comb, page 516, Sept. 1. They always manage to build enough drone cells between the top-bars and excluders; or, if no excluders are used, often utilize the space between the upper and lower frames. If they made a practice of cutting out comb to provide room for drone-comb building the value of foundation would be somewhat less.

What would become of our great citrus-fruit industry if the growers used no more system in marketing than we bee-keepers do our honey? Do we not possess brains enough to form a marketing organization for our product? At least we need an information bureau to issue bulletins informing bee-keepers of conditions, prices, etc. As it is, we harvest our crop, sell it to the first buyer that comes along, at what he may offer. I have known buyers to pay three different prices in Redlands, on the same day, for the same grade of honey. That is business! We can not blame the

buyer for his shrewdness; for so long as we continue to be dupes we may expect to be duped.

Every one with whom I have talked or corresponded on the subject of more stringent foul-brood laws agrees that such a law would be an excellent thing—for the other fellow; but few are willing that it should apply to *them*. If this should be the general sentiment, the fellow who thinks he does not need inspecting will, very likely, wake up to the fact, sooner or later, that he has some neighbors who need it, and he will have no recourse but to sit and wait until his neighbor is cleaned out.

The Dec. 1st issue was the most interesting number of the year to me, inside and out. The cover picture, taken at Liberty, Mo., less than 40 miles from my old home, where I spent 18 years of my bee-keeping life, is a most beautiful one. I can imagine rabbit-tracks crossed and crisscrossed among the hives. Inside I find Doolittle's excellent article on excluders—one of my hobbies (if I have any)—a hobby, because it is only in recent years that I have learned its true value, and I will preach excluders as long as the present hive and system of management are used. I have neighbors who do not use them, and argue that, when the bees need room, they will crowd the queen down. That is true to a degree; but crowding should be avoided, for it causes loss of time. Besides, it takes 21 days from the egg for a bee to hatch; three full extractings are often gathered in that time by a colony, which goes to show that the brood does not get out of the way fast enough. I prefer to let the queen go where she may until two or three weeks before extracting time; then put all the brood down that you can get down, and put on the excluder.

Mr. E. M. Gibson's comments, p. 721 on decapitating brood, are sensible and to the point. They pleased me very much.

Elias Fox, speaking of bee-trees, page 731, touches a subject dear to my heart; for of all pleasures of my boyhood days (and I am not over it yet) I believe hunting bee-trees was the greatest. Did it pay? Financially, no; in pleasure and recreation, it was one of my greatest assets. I can not agree with Mr. Fox about penalizing for robbing a bee-tree and killing the bees—that is just what should be done where foul brood is prevalent.

California bee-keepers should apply to the Interior Department for permission to enter forest reserves and remove bees from trees, especially in infected areas. While driving through a forest reserve in San Diego Co. I counted nine bee-trees, from the road, while traveling a distance of two miles. They were all in hollow and decaying live oaks that were of no actual value—most of them in limbs that could easily be removed.

Conversations with Doolittle

At Borodino, New York

BEEES IN THE MIDST OF BLOSSOMS.

"I must move in the spring from where I am now located, and wish to do the best possible with my bees. I should like to locate from one to two miles from where the greatest profusion of honey-producing flora abounds. It will be quite an inconvenience to me to be located in the midst of this bloom; but if the income from the bees would be enough greater to pay for that inconvenience, then I might persuade myself to locate there. Will you please tell us just what you would do under these circumstances?"

"This is quite a reasonable question for any one to ask who intends to locate an apiary, but who himself desires to be in a small town or other place not right in the midst of a good nectar-producing locality. A location in a valley full of honey-producing flora, together with rising hills on either side, covered with all manner of nectar-yielding flowers clear to their summit, two to five miles away, would be an ideal location for one who keeps bees for a living. But as it is impossible for all to enjoy such a location, and as other environments are likely to have a bearing on the decision, such as a convenient school for our children, or a business for some of the family, it is often best to accept the situation as it comes to us. And I do not think that a distance of one mile from any profusion of nectar-producing flora would make difference enough to be noticeable. I once heard the claim at a bee-convention, that a colony of bees which has to travel one or two miles from home for their stores will soon become so depopulated that the result in honey is not half that stored by colonies set right down in the midst of bloom. Another claimed that the loss of time from the young field bees in hunting for nectar one or two miles from home is almost sufficient to turn success into failure. Another, that it stands to reason that less time is lost in getting the whole force at work on the honey-producing flowers where the latter are plentiful all about the hives than if the pasture is one or two miles away.

"Probably no one can tell definitely about these matters without testing a number of colonies right in the midst of the blossoms, and an equal number one or more miles away, and repeating the test for a term of years; and as I have never done this, I can not be considered as an authority in this matter. I can only give my experience, which can be taken for what it is worth. All of my experience goes to show that those who argue that bees must be set right down in the very center of the honey-producing flora do this more from theory than from actual knowledge. I am led to believe that there would not be difference enough in the results, at the distance named, to pay for moving the apiary up to the bloom during

the time of the blooming of the flowers and back again for the rest of the year.

"The flight of bees must of necessity cover a vast area. No one, two, or three acres would give an apiary of 50 colonies even a living. I am often reminded of what a man once said to me about my bees in connection with my mother's flower-garden of about one-eighth of an acre. We were looking at a crop of about six thousand pounds of section honey I had piled in the honey-room. 'Oh, what a pile!' he said. 'No wonder your bees do well when your mother has such a pretty flower garden as I always see in bloom when I pass.' Of course, these flowers were 'right under the noses' of my bees; but not one out of ten varieties even attracted the bees; and when basswood was in bloom five miles away, not a bee was to be seen on any of these flowers; yet the sections were being filled as if by magic.

"If the flight of bees were as slow as the walk of a man, then the reasoning of our 'right in the midst of flowers' men would be more logical. I have watched our great 'Empire State' express train on the New York Central R. R., running at the rate of a mile a minute, and it passed my vision at no more rapid rate than the bees do over the hill on a still day when working on basswood from two to five miles away.

"If my questioner could see how the combs grow in the sections, the whiteness of the honey, and the beautiful cappings, as I have done when there was no open bloom of the basswood within three miles of the apiary, I think he would incline, and all the readers of GLEANINGS as well, to the same opinion I do; namely, that the so-called necessity of a short distance to the flowers, in order that success may be obtained, is little short of a myth. From many observations during apple and clover bloom I am convinced that bees go from one to three miles from home for nectar, from choice, during the summer months, during which months the larger part of the storing of honey is done, as I have seen thousands of Italian bees working on these different blooms three miles from where any Italian bees were kept, with a profusion of these blossoms all about the Italian apiary and the intervening space between.

"I have seen good crops of buckwheat honey stored when there was not a field of buckwheat in sight of the apiary, and only one field of about 12 acres within less than two miles, while hundreds of acres were white from three to five miles away. These experiences, together with having tons of basswood honey stored from the tops of the high hills from four to seven miles from my apiary during the past 40 years, lead me to feel safe in advising you to locate at the place you say will be the most desirable, rather than to inconvenience yourself by setting your apiary down in the midst of the bloom."

General Correspondence

THE ISLE-OF-WIGHT BEE DISEASE.

A Serious Disease of Mature Bees that is Doing Much Damage in Parts of Europe; an Entire Apiary of 160 Colonies Destroyed.

BY D. M. MACDONALD.

All other bee-diseases sink into insignificance in their ravages when compared with this insidious and malignant trouble. They can be fought against and overcome. We know their true origin, the nature of their development, and, from patent signs, can diagnose their presence, while preventives can be applied to check their spread or exterminate them. Like the pestilence, however, this new disease walketh in darkness, its conception and incubation come like a thief in the night. Its origin is uncertain.

In 1904 reports emanated from the Isle of Wight regarding a mysterious malady afflicting bees, virulent to an extreme, and deadly in its destructiveness. In fact, bee-keeping was quite wiped out in this lovely island by the season of 1908. Worse still, that year reports reached our journal, showing that distinct symptoms were manifesting themselves in various parts of Hampshire. That and the following season saw whole apiaries affected—several so seriously that they were exterminated. Outside the infected area bee-keepers were inclined to minimize matters at first; but soon alarm spread when it was realized that, as a consequence of the dissemination of swarms from the infected area, the disease had spread in 1909, not only to the southern and mid-land counties but also to the north of England and even to Scotland. Even then the deadly nature of the malady was not fully realized, and combs from infected hives were freely inserted into colonies hitherto immune, while swarms and driven bees were hived on the works whereon bees had died. Consequently the disease spread. The infection, too, passed on from hive to hive. The fell destructiveness may be guessed when it is stated that in one season an apiary of 160 colonies had every hive empty. Another, the other day, was reported to have 84 out of 86 all dead. Thousands of such specimens could be given. Some claim that treating the bees by shaking, as in a case of foul brood, and compelling them to work out new combs, will cure. Others go to the other extreme and maintain that healthy bees may be run on the diseased combs and continue healthy. Practical experience during the last three years convinces the writer that both claims are fallacious. Time and again both plans have been tried, only to end ultimately in failure. All recommendations have been tried, but none have proved fully effective.

The best advice that can be given in the light of our present knowledge is to destroy every thing movable in the hive; singe

the interior effectively, and thoroughly disinfect every thing. Dig the ground all around and bury or burn every bee seen lying about. Even then a new start should not be made on the same ground if it is possible to secure a fresh site.

As a sample of the rapidly destructive power of the disease, stocks as powerful as they could be in early June, this year went down so rapidly that, instead of filling ten frames and three supers, they deserted all but the lower crate a month after infection, in spite of splendid breeding; and at first it appeared that every egg laid came to maturity, for it must be remembered that, unlike foul brood, this disease does not affect the larva pupa nor even the perfect imago. It seems evident, indeed, that it is only when bees go out as foragers that the workers are infected. Breeding all July, during the delightful summer weather experienced, went on apace, and for a time hopes ran high that the colonies might work out their own salvation; but these hopes were dashed to the ground when, in September, on return from holidays all were found dead or dying. The miserable plight of the remnant was deplorable. Worse still, neighboring hives all around showed the well-known symptoms, and now most of those left are dwindling rapidly in spite of all attempts at cure. Earlier destruction would have been a kindness!

The symptoms at first are indistinct, so that the scourge has a deadly hold before any very clear signs are patent. A marked decrease in the number of bees occupying surplus chambers shows something is amiss; fewer bees go out foraging; even the bees which are apparently healthy show a disposition to loiter about, and exhibit a disinclination to go to the fields. Therefore large numbers are found lolling about on the flight-board—so much so that on a fine day it is black with them, as if they were in need of more room overhead. An examination of the top super, however, shows it quite deserted, owing to lessening numbers.

On close inspection an odd bee at first is seen flying aimlessly about. It or others may be seen crawling on the ground near the hive, making ineffectual attempts to fly. Looking more closely the wings are seen to make futile efforts to buoy the insect up into the air. On examining these bees it will be found that, generally, one of the small wings (almost invariably the left) may be seen sticking out at an angle above the front wing in an unnatural way, and looking as if it were dislocated. These bees then crawl about aimlessly, dragging their legs in a crippled way. They congregate in small clusters, numbering from half a dozen to a score, as if seeking mutual warmth. Many of them make feeble attempts to climb up any vegetation growing near, but after a time they fall down to die. While crawling about, the abdomen is heavily de-

pressed. It appears of abnormal size, and drags as if too heavy to be fully supported. In this advanced stage of the disease the interior of the hive, if examined, shows a sorry spectacle. The bees display none of the well-known energy so markedly symptomatic of a colony in full health during the active season. Breeding is, however, encouraged to a late period; but with the decreasing numbers it wanes until at last queens are entirely neglected and cease to lay. Then the rapid diminution of the numbers is most marked.

Examining a diseased bee, even with the naked eye, the abdomen appears abnormally distended. The bee seems unable to support the heavy burden caused by the excess of fecal matter. This, under the microscope, is found to consist largely of undigested pollen-grains, particles of wax, and the usual excrementary matter; and here we have a very large number of bacteria. On removing the digestive organs the colon is found abnormally distended, and the contents are very varied in color, smell, and substance, these features differing very considerably according to the season of the year. During summer time, tops are heavily spotted with a thin bright-yellow eviction. At other times it is drier and browner, while in winter and spring bees void a foul, brown, evil-smelling excretion over all the combs, frames, and the front inner walls. Here is, undoubtedly, the source of infection in many cases, when the trouble once finds a lodgement, for all this fouling contains a prodigious number of infective bacteria ready to be carried by robbers to all surrounding healthy bees. The hive, interior and exterior, as well as all the surrounding area, is, in fact, a hotbed of infection.

The trouble may break out in a hitherto healthy colony at almost any time of the year. During such a fine summer as we enjoyed this season, the bees battled long with the ailment, keeping it at bay by rapid breeding; but in winter and spring, with scant numbers present they dwindle rapidly and soon die off.

Innumerable causes have been guessed at in the past, but full investigation exploded the numerous theoretical conclusions. Many cures, too, have been suggested, but none have proved thoroughly effective; so that the originating cause and the true cure have yet to be discovered. It is an undoubted fact that many of the symptoms appearing on the surface are very similar to those which manifest themselves in May pest, malignant dysentery, paralysis, and *Nosema apis*. Indeed, the latest conclusion come to by Dr. Malden would lead to the decision that all of these may resolve themselves into kindred diseases. If so, the painstaking investigations of Drs. Zander, Burri, Maasen, Phillips, Malden, and others, may aid us in solving the problem. The remarkable series of about one hundred studies of *Nosema apis*, by Dr. Zander, should be a priceless guide to other students of this disease.

Whether the inciting cause or not, the latest anatomical investigations in this country reveal a prodigious number of these protozoöns in various stages in the cell lining of the alimentary canal, and particularly in the colon of many if not most bees suffering from this disease. Our lethargic government Department of Agriculture has at last taken up the subject of bee diseases, and hopes may be entertained that the long and painstaking investigations now going on may soon bear some fruit, as a result of which the disease may be successfully battled with and overcome.

Banff, Scotland.

MY EXPERIENCE WITH SUPPORTING FOUNDATION TO PREVENT BUCKLING.

A Combination of Wires and Splints Gives the Best Results.

BY CHARLIE BROWN.

When I began bee-keeping in 1901 loose wiring was advocated; that is, using wires not tight enough to sing. They were expected to go down with the foundation, but I found that combs so wired would be badly stretched along the top part, and also that, while new, they were much inclined to break along each wire while being extracted. I concluded that such a way of wiring was useless, and some older bee-keepers told me that all wiring is useless; so for some time I did not wire frames at all. However, in 1909, during the honey season we had a few days of extremely hot weather. I had given the bees a great deal of foundation just previous to the hot spell, and a great many of the newly drawn combs went down altogether, and nearly all of the rest were badly stretched along under the top-bar, and buckled out of the frame at or near the bottom. (These combs were built out in the supers.) Scarcely any of the combs that I had built that season were fit to put into the brood-chamber. That convinced me that combs need support.

Next I tried splints as per Dr. Miller's plan, putting them on the foundation out of hot wax; but I found that the bees would gnaw at them where they came to the bottom, following them up, and in many cases ruining the comb; also that the foundation (medium brood) would sag and buckle in between. I next tried shorter splints, letting them come within an inch or an inch and a half of the bottom of the foundation. Bees do not seem to be inclined to gnaw short splints, but the combs near the bottom would be badly buckled in and out.

Last season I did considerable experimenting with wires and splints together; and with four tight wires and four splints I got combs good enough, I think, for all practical purposes. Three wires and four splints did not give me good combs. Four tight wires alone let the combs stretch at the top and crush near the bottom; and right here let me say that I had the wires as tight as I could get them, having driven some 3/4-inch

brads into the edge of the end-bars right by the piercings. When the wire cuts into that brad it can go no further, and one can get them so they will sing and stay tight. Of course it is some trouble to drive a brad into the end-bar by the side of each piercing; but it is much quicker and better than driving nails through and then bending them into a hook with pliers, as I have seen some bee-keepers do. Of course you have to be careful to get the brad on the proper side of the piercing; but that is no trouble after you get accustomed to the work, and you can put them in much faster than you would at first think. I do not mean to say that the wire brads are absolutely necessary; they merely help to keep the wires tight.

To sum up, I would say that, for a frame that is square or nearly so, such as $11\frac{1}{2} \times 11\frac{1}{2}$, six tight horizontal wires will result in nice straight combs. Five will not. No splints are necessary. For a frame like the Langstroth, where the wire has such a long stretch. I shall continue to use four wires and four splints until something better is devised. I have not tried it, but I believe that five tight wires, equally dividing the space between the top and bottom bars would give good combs if they were built out in the brood-chamber. I do not think we can get perfect combs built on foundation; but we want them so nearly perfect that a queen can lay a worker egg in every cell if she so desires. I confess that I do not like the splints, and am wondering whether a little heavier wire, say 28, would not render them unnecessary. Possibly some one has tried it, and can tell us about it.

Right here I want to leave my subject long enough to say that I think that what we call the Madary top-bar out here is a thousand miles ahead of your wedge and groove. It has about a quarter of the under side of the top-bar sawed away, and the cleat is kept to put the foundation in with. You put your splints in flush with what is to be the top edge of the foundation, and then nail it in, splints and all. My experience with wedge-and-groove top-bars leads me to agree with that man who some time back hit them such a hard smash.

Piru, Cal.

[You will find that H. E. Thayer has been using baling-wires in place of splints with very satisfactory results. See page 554, Sept. 1st issue for last year.

The form of top-bar put out by Madary was first advertised and sold by E. Kretzmer, of Red Oak, Iowa, some years ago. There are many who prefer it.—Ed.]



OUTDOOR WINTERING IN WEST VIRGINIA.

Fifty Pounds of Honey Required.

BY W. C. MOLLETT.

I notice that most bee-keepers in the Northern States give the amount of honey necessary to winter a colony, either in the open air or in a cellar, as from 15 to 30 lbs.

Now, this locality is not very far south, and it would be necessary to double the above figures in order to be sure of enough stores for successful wintering. Of course, all the bees in this latitude are wintered in the open air, as the cold is neither so lasting nor severe as in the Northern States. As a rule, bees can fly every few days through the winter, and it is not common for them to be kept in by cold more than 10 or 12 days at a time. Very often they will begin to carry in pollen in January or February, and begin rearing brood. It is for this reason that they require a much greater amount of stores than in the North. I have sometimes found several combs containing brood the first of February; and by March 20 they are sometimes strong enough to swarm if the season permitted it; and I have had swarms come out in April. As there is no nectar to gather until May, it is surprising how fast the honey in the hives is used up. I have had colonies that had every comb in ten-frame hives as full as they could be in October, and yet they would be upon starvation in April. Estimating each comb to hold 5 lbs. of honey, this would be a consumption of at least 50 lbs. If it requires as much more in proportion in the States to the southward, it must require at least 75 lbs. in such States as Alabama and Georgia; but as the honey-flow would naturally come earlier there, this would offset this to a considerable extent. As a rule I would estimate that twice as much honey is necessary in outdoor wintering as when they are wintered in the cellar.

FRAMES HARDER TO HANDLE, AND SWARMING WORSE WHEN THE DANZENBAKER HIVES ARE USED.

Three years ago I was induced by the favorable reports to transfer my bees into Danzenbaker hives, as they were highly recommended for the production of comb honey. I thought that, as I produced only bulk comb honey, they would be just the thing for my use. Of course, on account of the difference in the size of the frames it was a somewhat difficult task to transfer them. After I had them put into Danzenbaker hives the first trouble I struck was the difficulty in handling the frames; and as the colonies became stronger the job became more and more difficult, until it was almost impossible to handle frames without killing bees. I had never realized until then the advantage of the Hoffman or Langstroth frame as to easy manipulation. I saw then that I could handle the frames of two Langstroth hives easier and quicker than I could one Danzenbaker. When the honey-flow commenced, the bees commenced swarming; and they kept it up right along all through the honey-harvest. In strict justice to the Danzenbaker hive it is only fair to say that I secured about as much honey as usual, and it was very nice honey—possibly a little better appearance than usual. But I was glad to go back to the Langstroth or dovetailed hive, and did so just as soon as I could. Since then I have secured about the same amount of honey with not half the

trouble, and I would not use the Danzenbaker hive if I could get them free of charge; and I am firmly of the opinion that those who adopt them are making a serious mistake. The bees also have to be fed in the fall or spring, as the hives do not hold as much honey as the standard hive, and this makes more trouble.

Stonecoal, W. V., Nov. 25.

JAMES HEDDON—BEE-KEEPER, INVENTOR, JOURNALIST, AND BUSINESS MAN.

Some Unwritten History.

BY E. R. ROOT.

Little did I think, when I recorded the death of four prominent men whose names began with H, in our Christmas issue, page 743, that there was still one more whose name also began with H. The last mentioned was James Heddon, who died Dec. 7 last. First there was Hutchinson, then Hilton, Herlong, Hall, and now we add to the list Heddon. Besides the fact that all of their names began with H, it is also significant that three of them lived in Michigan. We hope the year 1912 will not take away so many of our leading lights.

Twenty years ago Mr. James Heddon, of Dowagiac, Mich., was one of the most brilliant lights in all bee-dom. Sometimes erratic, he often surprised us by his genius. He certainly was a man of many parts and varied ability.

At one time he had between 700 and 800 colonies of bees, and he made them pay, as he did every thing he undertook. He was a practical bee-keeper, and from the year 1875 up to 1890 he was a more or less frequent contributor to the bee-journals. His style was clear and clean-cut, forceful, and, on occasions, caustic. Many of his sayings were epigrammatic. He was not a man to follow in the beaten tracks of others, and we therefore find him striking out into new fields in practical apiculture. In short, he was original if he was any thing. This very independence of action often led him to differ radically with his brother bee-keepers in regard to methods and appliances.

As I look back over those old days of 25 and 30 years ago I see him as if it were yesterday. I see him telling of a short way of transferring from box hives to modern hives—a method that has come to be known as the "Heddon short way of transferring" in our text-books, for indeed it is now the method most used by practical bee-keepers. I see him exploiting his pollen theory—a theory that has not been vindicated these later years. I see him explaining a method for controlling after-swarms—a method that has also been accepted in our text-books. Again, I see him recommending flat covers, and hives without porticos, eight-frame rather than ten-frame. Closely identified with this hive was his slatted break-joint honey-board—a device that entirely eliminated the brace-comb nuisance. We still find

it in the form of the wood-zinc honey-board; but without the zinc it gave way to the thick top-bar in brood-frames. When reversible frames were the fad in 1884 Mr. Heddon brought out one of the best reversible frames invented, and paved the way for the alternating of shallow frames, and now we see him in 1885 bringing out his divisible-brood-chamber hive, around which centered so much (I might say bitter) controversy between 1885 and 1890. If ever a hive was praised and smashed all into smithereens by friends and enemies it was the Heddon divisible-brood-chamber hive. The discussions in those days regarding this hive would fill a good-sized volume. Part of it related to the practicability of the invention, but more of it had to do with its priority and the validity of the patent covering it. While it looked at one time as if the hive would sweep every thing before it, because the idea of "handling hives" instead of frames, and alternating whole brood-sections of frames instead of reversing frames individually looked particularly attractive, the divisible-brood-chamber principle, while still favored by a few who still use it, likewise reversible frames, has all but disappeared from the apicultural horizon. *Requiescat in pace.* I hope the apicultural world will never again see such an "irrepressible conflict" as followed the introduction of the divisible brood-chamber and reversible frames. It is so fresh in my mind because it was at the very beginning of my editorial management of this journal.

On p. 645 I referred to his early idea of extracting honey from combs without opening hives.

In later years I see Mr. Heddon advocating the slip-gear for honey-extractors. Whether he was the first to see the advantage of an arrangement that would allow the propelling part of the extractor to become disengaged from the reel, I do not know; but I do know that the principle has been applied to all modern honey-extractors except the cheapest.

During the latter part of the '80's Mr. Heddon was editor of a bee-journal which was a supplement to his paper, the *Dowagiac Times*. In this Mr. Heddon thrashed his opponents to a finish. During the early part of the '80's he brought out his book, "Success in Bee-keeping." This attracted considerable attention at the time, principally because of its advocacy of new principles in hive construction. The book is now out of print.

Later on we find Mr. Heddon entering the field of civic affairs, during which he became mayor of Dowagiac, and editor and proprietor of the chief organ of his party, the *Dowagiac Times*. During all this time his interest in bees continued to be unabated until the latter part of the '90's, when he seemed to drop out of apicultural matters entirely. A little later on he became the inventor of a new kind of minnow bait that seems to have been a great success. The Heddon Bait Co. is still doing a big business.

As a bee-keeper Mr. Heddon could and did look ahead of the most of us. Indeed, I think I never ran across a man who could catch on to a new trick of the trade quicker than Mr. Heddon. While not all of his ideas panned out as he hoped for, he left his strong personal impress on the apicultural world, and bee-keeping literature for years will contain much of the name of James Heddon, because he was a great bee-keeper and a promoter of ideas that still hold sway. Very few men who have risen to prominence in the apicultural field could ever be called a genius; but I think we can say, without fear of successful contradiction, that, if there ever was a man who deserved that title, Mr. Heddon was the one.



JAMES HEDDON.

Mr. Heddon was, perhaps, misunderstood by some of his opponents in discussion. He appeared at times to be like the gladiator of old, who, when his opponent was down, seemed to have a ghoulish glee in sticking the knife in deeper and giving it a twist. This was a mistake, as the following incident, perhaps, will illustrate. At first I thought I would not tell it; but as it shows another side of Mr. Heddon's character I think it ought to be told.

During the days of the "irrepressible conflict" of which I have spoken, there was a war of words between myself and Mr. Heddon over the priority of his invention which I think now was, in part, at least, unjustified, because it might encourage some to trample Mr. Heddon's moral rights under foot. I contended, as an examination of his claims will show, that his patent, granted Sept. 29, 1885, was very narrow in its scope; that it did not cover the *general principle*

of the shallow hives or divisible-brood-chamber hives, and that, therefore, he had no more legal right to claim *all* divisible-brood-chamber hives or shallow hives than a squatter on a quarter-section of land had a right to claim the earth; that his patent was limited to the use of closed-end frames in a close-fitting brood-chamber in combination with thumb-screws; that a divisible-brood-chamber hive without any one of these elements to complete the combination were free to the public. He naturally concluded that this argument, advanced by me, meant that we, as manufacturers of hives, had in mind putting a divisible-brood-chamber hive on the market that would *evade* his patent; and I confess that that would be a natural inference. But that thought was not in my mind; and the subsequent history of our business shows that we did not put any divisible-brood-chamber hive on the market until after his patent expired, as we felt that Mr. Heddon had certain moral rights; and that if, in these later days, he had shown that the divisible-brood-chamber hives were labor-savers, it would be but fair that we respect those rights.

Well, it was during this discussion that Mr. Heddon felt that A. I. Root was about to purloin his moral rights because he could do so on account of the legal limitations of his patent. Smarting under this sense of wrong, I remember particularly one bitter letter that he wrote and addressed to my father and me. Father then was very sick with fever, and we did not think he would live. I replied something like this:

Mr. Heddon.—Your letter reaches us just as my father seems to be at the point of death. I have neither the heart nor inclination to reply, any further than to say you have surely misunderstood the attitude of both of us in the matter.

Back came the quick response, or as soon as Uncle Sam could deliver the message, in the shape of a letter reading about like this:

Dear Mr. Root.—I sincerely beg your pardon. I did not know your father was very sick. I desire to recall what I said—every word of it; and I assure you that, if you mean what you say, I will say no more.

While these may not have been his precise words (for remember that was over 20 years ago) yet they convey the thought. Mr. Heddon, true to his word, never referred to the matter again, and the hive question, at least, was settled for all time.

My only reason for repeating it here is to show that Mr. Heddon had a big heart when the heart-strings were touched.

Moral.—We often fight over something that we fancy has extraordinary value when it has not. The divisible-brood-chamber hive or the shallow hive was thought to save half the labor in handling bees. It has been tried in the balance of Father Time, and, except in the hands of a few experts, has been found wanting. Think of the pages upon pages of printed matter, to say nothing of the volumes of correspondence and time that was wasted. Think of the ill-feelings and misunderstandings that might have been avoided.



FIG. 1.—Marchant's home yard of 400 colonies. Along the Appalachicola River as many as 500 colonies can sometimes be supported in one yard. He has had as high as 600.

BEE-KEEPING ON THE APPALACHICOLA RIVER.

Something More About that Wonderful Honey Country; the Extent of the Tupelos; the Suwanee River, Famed in Song; Orange-growing Successful in Northern Florida where it Often Freezes Hard.

BY E. R. ROOT.

In our Dec. 15th issue I told something about the wonderful Appalachicola River, a region where nearly 2000 barrels of honey has been produced in a single season from an area that is smaller, I venture to say, than almost any other area that has produced only one-fourth of that amount of honey. Our friend A. B. Marchant, at Marchant's Landing, where I showed that big row of barrels on page 753, is almost in the heart of this wonderful bee country along that remarkable river, fringed as it is with the honey-bearing tupelo.

In this connection permit me to say that, so far as I can ascertain, the tupelo grows along the banks of all those rivers of Northwestern Florida, including the Suwanee River, made famous by that song that for many years has charmed millions and millions of people. If it is true that the tupelo and the gallberry grow in these regions it is a wonder to me that bee-keepers of the country have not known more about this territory before; and it is a greater wonder to me that Northern people should be flocking to the north and east coasts of Florida, where most of the lands are poor, when the soil in Northwestern Florida, at least along these rivers, will grow practically any thing and every thing. For the last few days I have been eating oranges sent me by my friend Marchant, near Marchant's Landing. When I saw his beautiful orchard where he had taken off time and again from 1500 to 2000 boxes of oranges, I said, "Why, I didn't suppose you could raise oranges as far north



FIG. 2.—Another view of the home yard, showing the extracting house.

as this. I supposed that the heavy freezing that you get here from time to time would utterly destroy the trees."

"Nonsense! It is a little more work and care, but we think our Northern Florida oranges are much sweeter," he said. "Hard freezes years ago did us damage, but we have profited by experience."

Here was an orchard 12 years old that has stood all kinds of freezes. Indeed, I understand that the man who knows his job, the soil, and the locality, can select a variety that will stand hard freezing, and, what is more, he can work the scheme of outside furnaces that are employed successfully in the more southern portions of Florida to keep off light freezes. The oft-repeated statement, that oranges can't be grown successfully above the freezing-line, is a joke according to these northern growers. But I will have more to say about this at another time.

Let us now look over Mr. Marchant's apiaries and his hive-stands. First, Fig. 1 shows a general view of the home yard of 400 colonies. Just think of it! 400 colonies in one yard year after year! That shows what the tupelo can do. Fig. 2 shows the same yard from a different angle, taking in the shop and the honey-house where the extracting is carried on. This yard is located close to the boat-landing that I showed you on page 753, Dec. 15. When the barrels are filled with honey at the extracting-house shown at the extreme right, Fig. 2, they are rolled down to the wharf and finally put on the boat. They are then carried by water clear to the city of New York at a freight rate of only 38 cts. per 100 lbs.

"Why," said I, "Mr. Marchant, you fellows down here have a snap. You are clear off in the woods, in a country that is not overstocked, and yet you are almost next door to one of the biggest cities in the world—New York."

The secret of it is, there is the Appalachicola River deep enough for big boats open-



FIG. 3.—Marchant's hive-stand.

ing up into Appalachicola harbor, then into the Gulf of Mexico, and finally into the Atlantic. By glancing at Figs. 1 and 2 you will see the tupelos in the background right along the edge of the river bank. These trees, together with other gum-trees, skirt the edges of this stream for over 100 miles. Emptying into the Appalachicola are dozens of other but smaller streams. Up one of these (what is known as Owl Creek) Mr. Marchant has another yard of about 400 colonies. In fact, I could imagine that dozens of yards could be located clear up along this river and its tributaries without any danger of overstocking, simply for the reason that the country is so new, and that the great mass of bee-keepers have never known of this wonderful territory where such beautiful white honey that does not candy is produced by the shipload.

But the question is asked, "Why are there no more bee-keepers and bees along this river if all you say is true?"

¶ Largely, I understand, because it is difficult to find a good spot to put an apiary on

ground above high water, and then malaria and mosquitoes are prevalent in many places along the river. In our next issue I will give you some snap shots showing whole apiaries on the river, located up on stilts.

But let us go back to Mr. Marchant's home yard. We notice that his hives are put up on high benches. This is not on account of high water, but for convenience in working and to avoid harboring-places for ants. We observe, also,



FIG. 4.—Marchant's scheme for weighing his honey with a large pair of steel-yards and grab-hooks.



FIG. 5.—A closer view of the grab-hooks for catching the barrel while it is being weighed.

that the grass has been cleaned off so that the ground is level like a brickyard. In front of every hive is a board running from the ground clear up to the entrance. Notice Fig. 3, which shows the details of the hive-stand as they are made at the Owl Creek yard. This cleaning off all the grass is largely for the purpose of keeping away ants that are so destructive in most localities in Florida. Mr. Marchant thinks there will be no trouble from this pest provided the ground where the apiary is located is kept free from all boards, rubbish, vegetation, and shrubbery, including trees where the ants are apt to form their nests. Later on I will show you something how these ants make nests in trees, and what fine chicken feed they make.

MARCHANT'S UNIQUE SCHEME FOR WEIGHING HIS HONEY.

Let us now step under the shed in front of Mr. Marchant's honey-house, shown in Fig. 2. Here we see a mammoth pair of steelyards; and connected with them is something that looks like ice-tongs. See Figs. 4 and 5. This scheme for weighing honey in barrels by means of big steelyards beats any thing else I ever saw. They cost only \$3.50, and then all that is required is a long pole, a support overhead, and an iron ring having attached to it two iron rods with hooks on the end.

We will say we are now ready to weigh up our honey. One man steps over to the end of the long pole; the steelyards are attached while the second man rolls the bar-

rel under the pair of iron hooks. The steelyards are dropped down until the hooks catch over the ends of the barrel. The barrel is then raised just enough to clear the ground. The weight is taken, when the next barrel is weighed in the same way. The whole thing is shown in Figs. 4 and 5. It is a great scheme, and I am sure it can be employed to advantage by other bee-keepers.

MARCHANT'S SCHEME FOR SHADING HIVES.

In Fig. 6 we have Mr. Marchant's scheme for shading hives. The ridge piece is made of inch lumber a little longer than the hive, with cheap shingles nailed on to it at right angles to each other, as shown in the illustration. This kind of shade-board is very cheap, and its shape gives a little better circulation of air between the shade-board and the top of the hive than the ordinary arrangement lying flat on the hive.

Fig. 7 shows a four-story ten-frame colony operated for extracted honey. You will notice this stands up on scales for recording the honey-flow. The hive next to it has three stories. Every modern yard nowadays has a scale hive; and as the honey-flow begins to taper off, the bee-keeper will modify his plan accordingly.

In our next issue I hope to show you apiaries up on stilts on that same Appalachicola River, and a few snap shots showing the river itself. I shall also have something to say about the advantage of a river for transporting bees to new pastures.

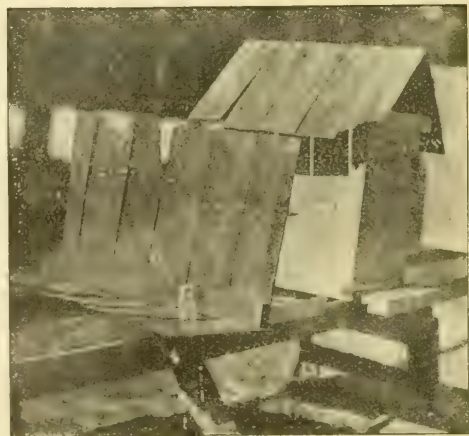


FIG. 6.—Marchant's shade-board. This provides better ventilation than the ordinary flat shade-board.



FIG. 7.—Marchant's scale hive. There ought to be a hive of this kind in every large yard to keep tab on the honey flow.

CAPPING-MELTERS NOT NEEDED UNTIL THE END OF THE SEASON.

BY E. L. HOFFMAN.

To use a capping-melter during the extracting season adds work at a time when the bee-keeper has more than he can attend to, without any material advantage. Of course, not so many objections can be raised when extracting is done at the home yard altogether; but after arriving at an outyard it takes some time before the melter is hot and ready.

The honey that flows from it near the close of a day's run is not very salable; and nearly all honey taken from a melter is injured in flavor and color. The first gallon or two coming from a melter is of almost perfect quality; but as soon as refuse begins to accumulate in the melter the honey is injured. In melting the cappings from new combs it will be near the close of a day's run before there is much difference in the color of the honey; but the flavor is slightly changed from the first.

At the close of a day's run, there is a great deal of refuse, wax, and poor honey in the melter that must be emptied into some other receptacle to be worked up later for the wax it contains. Emptying the melter and getting it ready again for another run must be done at the close of a hard day's work, when the same time should be used in getting home for as much rest as possible. If this work is left until the next morning, too much time will be lost when the help is on hand to go to work.

The heat generated by a melter is also very uncomfortable for the operator.

I intend to use next season a Townsend uncapping-box to be carried from one yard to another. The cappings are to be taken from the box and left in a receptacle built for that purpose, one at each yard, in which the cappings can drain until the close of the season, after which time they can be collected and hauled to the home yard, to be melted up when time is not worth so much. If you know of a better plan I shall be under obligations to you if you will outline it to me.

Janesville, Minn.

[For some time we have been of the opinion that the solution of the problem lies in draining the cappings in large tanks during the busiest part of the season, and then melting them up later, when they contain a relatively small amount of honey, and, too, when time is less valuable.—ED.]

CHAINS TO KEEP TIERED-UP HIVES FROM BLOWING OVER.

BY A. V. POLLOCK.

I am sending you a photo of a part of my apiary, situated right in town. My wife and I have veils on, and my daughter is sitting on a stump. I have built a frame house having a stone foundation under it which makes possible a good cellar for wintering bees.

The log-chains shown, I put over the tiered-up hives, thinking they would keep them from being blown over in storms. We got 1500 lbs. of honey from 16 colonies last year. We have plenty of willow-herb, red raspberry, basswood, and red, white, and alsike clover.

Mattoon, Wis.



A. V. Pollock's apiary in the town of Hutchins, Wis.



FIG. 1.—L. E. Evans' apiary, Onsted, Michigan.

BEES FURNISH MONEY TO BUY 160 ACRES OF LAND.

BY L. E. EVANS.

During the early '80's I purchased a colony of black bees in a shoe-box for six dollars, and at once had the bee-fever, from which I have never recovered. At one time I had as many as 500 colonies in three yards. The three last seasons have been quite poor; but I have managed to get from \$400 to \$800 each season. There certainly is money in bees, as well as pleasure. I have made enough from them to buy 160 acres of land, as good as can be bought in my section.

I have been much interested in the various articles and illustrations describing paper cases for wintering bees on their summer stands. I have experimented considerably along this line myself the past four years, and have succeeded in working out a

method whereby I can winter my colonies one season with another as well as though they were in a cellar. I use insulating paper, and pack each colony by itself in planer shavings.

Fig. 1 shows my apiary with the workshop and honey-house in the background. I make all my hives, sections, shipping-cases, etc. Fig. 3 shows the interior of my shop with the various machines. I have a V-grooving machine for sections, a 24-inch planer, a rip-saw table, and sander.

Onsted, Mich.

♦ ♦ ♦

A HIVE-LIFTING DEVICE.

BY JAMES M'LEAN.

I have nearly forty colonies of bees at present, packed in drygoods-boxes that I bought at the stores, altering them so as to have a slanting roof. I could not get any one to help me put them in the boxes, so I had to invent some way to do the work alone. I made the frame that you see in the picture, and got a pair of small double-tackle blocks from a neighbor; and by moving the machine myself I managed the whole business without any help from any one.

You will notice that I have a hive raised up ready to slip the box under, and then let them down carefully into the box. Of course



FIG. 2.—Honey-house and shop with the apiary in the background.

I stand on the ground to do the work, being perched up there only while the picture was taken. I send this to show how any one can keep bees in a city or village. I have never had any trouble about keeping my bees, as they simply let people alone as long as they keep away from disturbing the hives. The next neighbor east of me has a path through my bee-yard, as it is nearer for them to the postoffice and stores. There are dozens of people traveling this path nearly every day, but we never have any trouble from the bees.

I sell the most of my honey from the house at retail, in 4x5 sections, and can keep it a year without candying in the attic of my house. I am in my 70th year, and have kept bees for about fifteen years.

I failed to pack my bees one winter several years ago, and lost them all but three colonies. I use the Hill device packed with leaves and planer-shavings, and have never lost any, to speak of, when they are packed as described.

Hemlock, Mich.

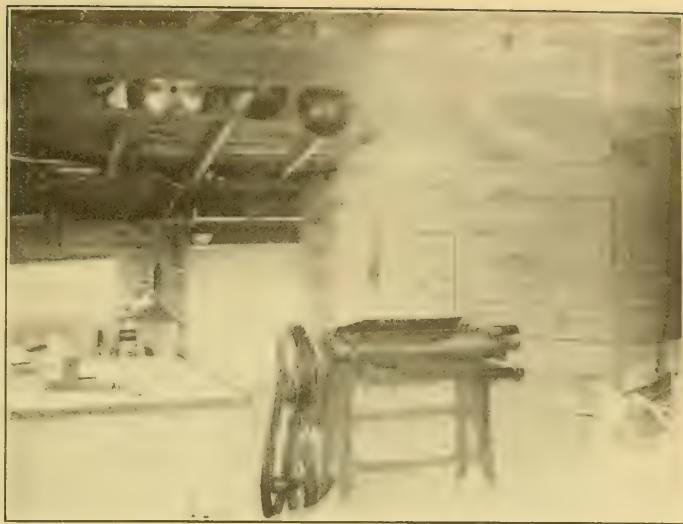


FIG. 3.—Interior of shop, showing small planer, saws, etc.

DAMPENING SECTIONS BY MEANS OF A WET CLOTH.

BY GEO. A. O. BOYUM.

To dampen sections before folding them, take them out of the crate and lay them on a table; then take a white cloth, soak it in water, wring out some of the water, leaving it very damp, and spread it over the sections as shown in the view on next page. Leave



James McLean's apiary and hive-lifting device, Hemlock, Michigan



Apiary of D. W. Bryant, Ethelfelts, Virginia.

the sections covered in this manner until they are sufficiently dampened for folding. When they are ready, they will fold together without making any noise whatever. If they are too dry they will make a creaking noise when being folded. If the sections are very dry it may be necessary to soak the cloth twice or to apply it double. Ordinarily the time required by this method is less than one hour. The moisture as it leaves the cloth settles down into the V grooves, where it is then absorbed into the wood just where it is wanted.

Rushford, Minn., June 19.

BEES IN VIRGINIA.

BY D. W. BRYANT.

I have never seen any thing in GLEANINGS from Virginia. This engraving shows how I arrange my hives with shade-boards

over them. I have kept bees in this place 20 years, and have had Italians of the red-clover strain six years. I find them superior to any others which I have kept.

This picture was taken looking west. My apiary is located on a west slope. I put windbreaks on the north side in winter.

Ethelfelts, Va., Nov. 12.

WHOLESALE REQUEENING.

A Breezy Comment on Current Discussion.

BY H. HARLEY SELWYN.

Isn't Mr. Byer's story, p. 619, Oct. 15, of his wholesale requeening, well told? I can almost see the picture of them in that tent, down on their knees peering into the corners of the hive, eagerly looking for "her," and can almost hear the ever irresistible "There she is!" as one catches sight of the quivering, elongated body of the mother of the hive, always running, squirming, slipping through the denser clusters, or lying motionless in some shaded portion of the hive.

Indeed, it is a fascinating work, and one that causes the dinner or perhaps the breakfast hour to slip by unnoticed



Dampening sections by laying a wet cloth over them for an hour.

until a frantic mother or wife gets up sufficient courage to approach near enough to make her voice heard; for, persuade as you will, she never will believe that the combination of hum and veil can make other noises pass unnoticed.

DOUBLE SUPER WITH EXCLUDER BETWEEN FOR FINDING QUEENS.

But, to touch on the point Mr. Byer has so ably handled, viz., the best process of locating the queen of a populous black colony in order to remove her and replace with one of the Italian strain, it has been the writer's privilege to undertake a like hunt through many hives of blacks; and he, too, has found the plan outlined by Mr. Byer of the greatest assistance. Possibly the following suggestion is even more simple, if any thing, and gives good results: Take two ordinary deep supers; and, after placing a queen-excluder between, fasten well together with shipping-staples. Place this before the hive to be operated on, then remove one frame at a time, and, after a quick glance over each to sight the queen if possible before the bees become badly excited, shake into the empty super. Repeat this performance with each frame, placing them either in an additional super designed for that purpose, or leaning them against the hive. Now ply the smoker on the mass of bees lying on the excluder, and see them vanish through the perforations until none but frantic drones remain; and, unless fortune is against you, there you will find the queen trying with all her might to reach the heart of the underhanging cluster. A moment's glance will decide the question; and if no queen shows up, transfer your attention to the interior of the empty hive, and the chances are you will find her somewhere on the walls or in the corner of the hive. The easiest part of all then (that of pinching her) can be done, although it always seems hard to close down on such very willing servants—at least it has always caused me a feeling of remorse to end so quickly this wonderful organ of reproduction, adored and treasured by her host of followers. Such, however, is the claim of modern bee-keeping; and if we want to hold in check that terrible scourge, foul brood, running rampant through this country, Italian queens, and Italians, too, of only the most vigorous strain, must take the place of the humbler black.

MOVING BEES FIFTEEN MILES ON A FLAT CAR.

This fall I took in charge a yard of about 35 colonies of blacks and transferred them on a flat car a distance of 15 miles from a territory where foul brood is not yet known. It was my first experience in moving bees by rail, and certainly it has shown me that with little difficulty a hundred hives or so could be quickly and safely moved to new pastures for the honey-flow. The hives in question were closed over on top with wire cloth, across the front with a strip of lath. They traveled without a hitch—that is, so far as the bees themselves were concerned;

but the railway agent couldn't get up nerve to weigh each individual hive, so made an estimate, much to the benefit of his nerves, perhaps, but hard on the earnings of said railway; for his tense condition on approaching and handling one to get an idea of its approximate weight was so great that the hive must have felt extremely light, for he figured on only 25 pounds. When in great stress of mind or body it is claimed mankind possess abnormal strength. I rather think he was no exception to the rule. Nor was he the only backward man around that station; for when the freight pulled in, the train hands were quite willing to wait several hours if I would only do the loading; and, in fact, I had to.

These colonies, as I have already mentioned, are the real "black as your hat" quality, and next spring it behoves me to do some queen-hunting extraordinary.

Kirks Ferry, Que., Can.

THE COLORS OF NORTH-AMERICAN FLOWERS.

BY JOHN H. LOVELL.

Beautiful flowers are designed to attract the attention of insects, and they exist only where there are insects to behold them. "In New Zealand," according to Wallace, "where insects are so strikingly deficient in variety, the flora is almost as strikingly deficient in gayly colored blossoms. Of course, there are some exceptions; but, as a whole, green inconspicuous and imperfect flowers prevail to an extent not to be equalled in any other part of the globe, affording a marvelous contrast to the general brilliancy of Australian flowers combined with the variety and abundance of insect life." Very few of the higher insects feeding on nectar and pollen occur in New Zealand. A few years ago only 18 species of butterflies were known, and of bees only 10 species, while at the time of their discovery neither the honey-bee nor bumble-bees were found in these great islands. Flies are here the most important group of flower-visitors.

All orders of insects are much more abundant in both Europe and North America; and in lands where there is an insect fauna, rich both in species and individuals, flowers display an infinite number of brilliant hues and delicate shades which surpass the power of the artist and naturalist to describe. There is a wonderful variety of bicolored, tricolored, and variegated blossoms, often veined and mottled in endless ways. Not only are the prismatic colors—red, orange, yellow, green, blue, and violet displayed by many species with a profusion of intermediate shades, but rarer colors like black, brown, scarlet, crimson, and lurid purple are not unrepresented. Nature has tried her skill as a colorist in the bright translucent hues of corals and sea anemones; in the lights and shades reflected by the scales of the butterflies' wings; and in the brilliant iridescent

hues of the plumage of birds; but nowhere are her inexhaustible resources in chromatics so bountifully exhibited as in the colors of flowers.

See, and scorn all duller
Taste, how heav'n's lover color,
How great Nature clearly joys in red and green:
What sweet thoughts she thinks
Of violets and pinks.
And a thousand flashing hues made solely to be
seen:
See her whitest lillies
Chill the silver showers,
And what red mouth has her rose,
The woman of the flowers!

A flora in which the flowers are all of one color would be at a great disadvantage. The value of color contrasts is evident, for they enable the visitors, more especially the bees, easily to remain constant to a single plant species in collecting pollen and nectar. If they were to visit flowers indiscriminately, much pollen would be wasted and much time and effort lost in locating the nectar. In the Alpine flora of the Tyrol, in the heights above the tree-line, there is no spring and no autumn—only a short summer following a long winter. All the flowers have, therefore, to blossom in this short time. "White and red, yellow and blue, brown and green," says Kerner, "stand in varied combination on a hand's-breadth of space. Hardly has the snow melted, than there appear almost simultaneously the violet bells of the soldanellas and the golden flowers of the cinquefoil, the white crowfoot and androsace, the red silenes and primulas, the blue gentians and the yellow auriculas, the heaven-blue forget-me-not and the yellow violet as well as the saxifrages in every conceivable color." Such a meadow in Alaska, where the summers are equally short, is thus described by Burroughs:

Starred with flowers of every hue,
Gold and purple, white and blue;
Painted cup, anemone,
Jacob's-ladder, fleur-de-lis,
Orchid, harebell, shooting-star,
Crane's-bill, lupine, seen afar:
Primrose, poppy, saxifrage,
Pictured type on Nature's page.

According to a well-known principle of physics, each color appears more brilliant in contrast with other hues than it would if viewed alone. This can be easily shown by a simple experiment, which any one can perform. Cut out two pieces of red paper, each two inches square. Place one of the red squares on a large sheet of green paper and the other red square on a large sheet of red paper. The red square on the green paper will appear so much more brilliant than the red square on the red paper that the observer will have difficulty in believing that they are identical in hue.

Some years ago I began an inquiry as to how many flowers there are of each color in the flora of North America. In northeastern America north of Tennessee and east of the Rocky Mountains there have been described 4020 species of flowering plants, or angiosperms. Partly by direct examination and partly by reference to various systematic works I have tabulated the entire number

according to their predominant colors—a labor which, I need hardly say, extended over several years. I find that in this area there are 1244 green, 956 white, 801 yellow, 260 red, 434 purple, and 325 blue flowers. In every hundred species there are 30.9 green, 23.8 white, 19.9 yellow, 6.4 red, 10.9 purple, and 8 blue.

The green, white, and yellow flowers number 3001, or three-fourths of the entire number; while the red, purple, and blue amount to only 1019. Though there are many exceptions, the first group usually have regular or wheel-shaped or cup-shaped flowers with the nectar easily accessible, and are visited by all flower-loving insects—a miscellaneous company of beetles, flies, butterflies, wasps, and bees. The flowers belonging to the second group are very frequently irregular or one-sided, with the nectar deeply concealed, and are attractive chiefly to long-tongued bees, butterflies, and hoverflies (*Syrphidae*). The tendency of flowers to change from green, white, and yellow to red, purple, and blue, is much stronger than the reverse; but red, purple, and blue flowers usually have the petals white or yellowish at the base and in the bud, and not infrequently the whole corolla reverts to one of these colors.

Have these relations any significance? Undoubtedly they have. They are signals pointing out to us the course our flora has pursued in its evolution. The green, white, and yellow colors are older and more primitive than the red, purple, and blue, and were more common in the primordial flora. The red, purple, and blue flowers are, as a whole, of much more recent origin, and have been developed from green, white, and yellow blossoms. For example, the buterecups are a much older genus than the columbines and larkspurs, and the cinquefoils are more ancient than the pea, bean, or vetch; while, again, the viburnums are older than the honeysuckles. The orchids have certainly developed more recently than the lilies. Occasionally irregular flowers revert to their ancestral stages and produce perfectly regular forms. Individual white flowers may change to red, as in the Sweet William; or to yellow, as in the climbing honeysuckle; or yellow flowers may change to red as in the bush honeysuckle and the lantana.

Let us next inquire how many of these 4020 flowers found in northeastern America are pollinated by the wind and how many by insects. Among wind-pollinated plants are the grasses, sedges, and rushes; many homely weeds like the pigweeds, sorrels, nettles, and ragweeds, as well as many deciduous bushes and trees, as the alders, poplars, elms, oaks, beeches, and birches. After a careful examination of every genus I place the number of wind-pollinated plants (including a few pollinated by water) at about 1046. This number is probably a little too large, for in the case of some western species there are no recorded observations, and they may be self-pollinated. Still it can not be

far from correct, since the grasses and sedges alone in this area include 705 species.

Most wind-pollinated, or anemophilous (wind-loving) flowers are green or dull-colored; but the sorrels are blood-red, and the aments of the birches are golden yellow. Of the 1046 anemophilous species, 1021 are chiefly green, 1 white, 11 yellow, 3 red, 12 purple. Thus there remain in eastern America 2972 species which are pollinated chiefly by insects, or are self-pollinated. Of this number 223 are green, 955 white, 790 yellow, 254 red, 425 purple, and 325 blue. It is evident that bright coloration is correlated with insect-pollination, and dull coloration, or inconspicuousness, with pollination by the wind.

Brilliant flowers usually contrast with green foliage. But in early spring I have seen white and blue hepatics blooming amid sere and brown leaves fallen from the trees the preceding autumn; and contrasting with the dark soil in dense woods I have found the snow-white Indian pipe. In the eternal twilight which prevails in the primeval forests of the equinoctial regions of both the old and the new world there occurs a group of parasitic plants called the *Balanophoraceæ*. There are only about forty species, and the whole plant is colored deep yellow, blood red, or purple. Flowers which rest upon the surface of the water are often white or yellow, as the yellow and white water-lilies. Nocturnal flowers are also generally white or yellow, since purple or blue would be invisible at night.

In the absence of petals the calyx may become bright-colored, as in the clematis, anemone, marsh marigold, and buckwheat; or both calyx and corolla may be colored, as in the columbines, larkspur, and fuchsia. The aments of the willows are rendered very conspicuous in spring by the very numerous yellow and red anthers, while in the meadow-rue the white and blue filaments are broad and petaloid. The small leaves or bracts surrounding the flowers are also frequently highly colored. In the painted cup (*Castilleja*) the bracts are bright scarlet; in *Monarda media* the bracts are purple, and in the bunchberry white, while in the *Proteaceæ* of Australia the upper foliage leaves are blue.

Again, conspicuousness may be secured by massing small flowers in large clusters, or by their production in great profusion. A single bluet is visible at a distance of only a few feet; but when they whiten a whole hillside they form a part of the facies of the landscape. In the town of Wiscasset, Maine, the dandelions when in bloom carpet the whole fields; while in New Jersey large districts are white with daisy blossoms, but, unfortunately, not for the harvest. On the prairies of Nebraska the ground-plum presents in spring a very striking appearance, the plants forming dense masses of reddish-blue flowers. In North Carolina, *Rhododendrum maximum* and *Kalmia latifolia*, or mountain laurel, the two handsomest North-American shrubs, "are seen to cover

tracts of great extent at one season, presenting an unbroken landscape of gorgeous flowers." They adorn the valleys all around, says Asa Gray, in one of his letters, "in immense abundance and profuse blossoming of every hue from deep rose to white." Almost equally conspicuous in various parts of the country are large areas brightly colored with yellow buttercups, goldenrods, sunflowers, orange-hawkweeds, purple thistles, and blue lupines. The blue lupine, or "blue bonnet," is the State flower of Texas, where, says Scholl, "it grows in great profusion over the entire ground, making it look like a solid blue carpet for miles around." But nothing in this world can surpass in beauty or lavish abundance the cloud-like masses of bloom displayed by the great northern apple-orchards.

Compare these brilliant landscapes of color with Wallace's description of the tropics: "I have never seen in the tropics such brilliant masses of color as even England can show in her furze-clad commons, her heathery mountain-sides, her glades of wild hyacinths, her fields of poppies, her meadows of buttercups and orchises—carpets of yellow, purple, azure-blue, and fiery crimson, which the tropics rarely can exhibit. We have smaller masses of color in our hawthorn and crab-trees, our holly and mountain ash, our broom, foxgloves, primroses, and purple vetches, which clothe with gay colors the whole length and breadth of our land. These beauties are all common. They are characteristic of the country and climate; they have not to be sought for, but they gladden the eye at every step. In the regions of the equator, on the other hand, whether it be forest or savanna, a somber green clothes universal nature. You may journey for hours and even for days, and meet with nothing to break the monotony. Flowers are everywhere rare, and any thing at all striking is to be met at only very rare intervals."

Waldoboro, Maine.



FOUL-BROOD LEGISLATION IN CALIFORNIA.

The Necessity of Co-operation between the Northern and Southern Portions of the State.

BY HARRY K. HILL.

On p. 552, Sept. 15, Mr. P. C. Chadwick makes some suggestions about a new foul-brood law for California with the intention of bringing out a discussion. I fully agree with him that the present law is of little force, and that a new law creating a State inspector is desirable. He makes some suggestions about the details of the proposed new law, which, in the main, I agree with; but there are some points upon which I should like to make some remarks; and chief among them is this: He says, "My idea would be to . . . have a State inspec-

tor appointed by the Governor upon the recommendation of the State association." Now, upon this point hangs considerable. The reader may not know that there is a little friction between the bee-keepers of the northern and southern parts of the State, caused, undoubtedly, by more or less misunderstanding. The so-called State association represents the bee-keepers in the southern end of the State, with headquarters at Los Angeles. I am not well posted on their membership, but I think I am well within bounds when I say that they have not a member north of San Francisco, and very few that far north. On the other hand, the northern part of the State is represented by the Northern California Bee-keepers' Association, with headquarters at Elk Grove, near Sacramento. The memberships of the two associations, I understand, are nearly equal; but the northern association has much greater future possibilities. The position taken by the so-called State association in all matters of legislation (and otherwise for that matter) has been particularly galling to the bee-keepers in the northern end of the State. For instance, at the last session of the legislature a bill was presented which would have undoubtedly been passed had it not been for the opposition of our association. On three occasions, I believe, our secretary requested a copy of this bill before it was presented, but never received one. Instead he received a letter advising our association to push the bill, without seeing it, stating that it was to our advantage to do so. Practically the only difference between the bill and the present law was that which would have effectually erased the Northern California association from any further importance in California beedom, making it necessary, if we would have any thing to do with contemporary bee-keeping life, to join them.

I could go on, but have probably said enough to show that conditions are not as they should be. It would be greatly to our credit and mutual benefit to work together. We of this part of the State are not opposed to joining a State association, but it must be a *State association*. Meetings must be held in various parts of the State, not at one particular point; and several other things should be modified which I will not touch on here, although they could doubtless be settled favorably to both sides.

The point I wish to bring out in writing this is that, in a campaign for another foul-brood law, the first points to reckon with are the bee-keepers themselves. The Northern California bee-keepers will undoubtedly object to any law which places the full control in the hands of the State association. It seems to me that the bee-keepers of California can consider nothing more important at their next annual convention than steps to bring about a better understanding between the different parts of the State, as that is certainly of the utmost importance in forcing any legislation.

Willows, Cal., Nov. 30.

BEE NOTES FROM EUROPE.

Buckwheat and Bees.

BY R. LINDE.

On this continent, buckwheat-growing is fast decreasing in spite of its being an excellent feed for pigs. Farmers in heather regions, where sandy soils predominate, say that buckwheat, where fed to pigs, imparts a peculiar sweetness to the bacon; and its hay, though small in quantity, is greatly appreciated. Buckwheat is considered an unreliable crop, although some years it pays well. Being very sensitive, late frosts very often ruin the harvest. This year I have met farmers who had sown buckwheat successively three times, and each time light night frosts killed the young plants.

Generally, buckwheat is sown late in May. The first of July is the date when the white-flowered fields put in an appearance.

As unreliable as buckwheat is to the farmer, so it is to the bee-keeper as a honey-yielder. But when all conditions are favorable, buckwheat yields honey profusely. However, a special market must be sought for buckwheat honey on account of its color and peculiar flavor, which the ordinary honey-consumer does not like.

The old-fashioned skeppist maintains that buckwheat yields nectar during the morning hours only, and that east winds favor the secretion of nectar considerably. Indeed, I have rarely seen bees working in the buckwheat-fields in the afternoon except when the weather in the morning had kept the bees indoors. Whether in that case they gathered much nectar I do not know.

DO BEES STORE MORE WHEN WORKING ON BUCKWHEAT!

In the opinion of the skeppist, bees sting more furiously when working in buckwheat fields than at other times. He further maintains that work in buckwheat fields exhausts stocks rapidly—so much so that they are almost worthless for any later flow. According to him it is, of course, the buckwheat that in one way or other causes the bees to die in such immense numbers. The peasant is always inclined to look for external causes, never suspecting his bees to be at fault. But the real cause of the dwindling of stocks working in buckwheat is very probably different. The skeppist is working with a bee in which the swarming trait is systematically developed. Now, buckwheat comes in bloom just at a time when the old foraging bees that went with the swarms (three and more from one stock) have done their work, and there is not an adequate number of young bees ready to take their place, owing to the fact that brood-rearing stopped for several weeks while swarming was going on.

My own experience in buckwheat-fields does not warrant me to express any opinion as to the assertion that stocks having work-

ed on buckwheat are less valuable for any later flow; but this assertion does not seem to be entirely without some foundation. Some bee-keepers think that it is the strong flavor of the buckwheat honey that makes the bees dull, and renders them more or less indifferent to later-blooming flowers with less pronounced odor.

THE ONE-HOLE FEEDER.

The one-hole-feeder idea, as expounded by the editor, is best taught in England, and for a long time already. In England I became acquainted with a feeder I am now using exclusively. I don't know who the



A feeding-jar having an adjustable opening for the syrup.

inventor is; but it is a splendid feeder, by means of which feeding may be easily adapted to all possible requirements. The illustration explains the construction. One could turn on from one to nine holes; and when the bottle is empty it may be refilled without the bees escaping.

BEE-STINGS AND DARK CLOTHES.

Although I always wear dark clothes when working in the apiary, I experience no inconvenience from them as regards stings, because they are so strongly saturated with the hive odor and with bee products that the color becomes a secondary factor. My black felt hat, however, has many a time served the useful purpose of attracting pugnacious bees away from my unprotected face when an unexpected onslaught happened to render the situation unpleasant for me.

DARK HONEY FOR ANEMIC PEOPLE.

Mr. Editor, you are quite right in your explanatory note to what Dr. Miller gleaned from *Deutsche Bienenzucht*. Basswood honey is not dark, page 614. The fact is, the tongue can not trace the basswood-honey admixture in the dark honey the bees gathered in considerable quantities during July; still another fact is that, in the morning and evening, bees made a great roar in the basswood-trees. About the same time, great quantities of highly aromatic propolis were accumulating in the hives. This propolis remained rather fluid for a considerable time.

It seems odd, but it is a fact, that I sold my dark honey sooner than the light, owing to what I stated in my advertisement in the local paper, viz., that the dark honey, on account of its higher percentage of phosphorus and iron, could be especially recommended for nervous and anæmic persons, scrofulous children, and for all those who have to do much brain work. After this advertisement appeared, the majority of the orders coming in were for dark honey. However, there is one very important difference between my dark-honey customers and my light-honey customers. Rather few repeat orders are coming in from the former in comparison with those from the latter.

HIGH PRICE OF SUGAR.

The editorial, page 611, Oct. 15, regarding expensive sugar for fall feeding, reminds me that, at the time of writing, the price of sugar has not fallen much in spite of the fact that the beet harvest has been very much better than was expected some months ago. Indeed, the beets contain a much higher percentage of sugar than in former years. It is the yield in weight that is unsatisfactory. Bee-keepers in most European countries feel very keenly the indirect tax levied on sugar. In Germany the sugar tax amounts to about \$1.70 per 100 lbs.; in Holland, Austria-Hungary, Italy, etc., this tax is higher still. We are making efforts to get the sugar we need for feeding our bees free of tax. But difficulties arise from the necessity of having such sugar characterized by some admixture that does not harm the bees, but at the same time prevents an illegitimate use of the sugar. Sand, sawdust, peat fiber, etc., have been suggested and tried in some states; also pepper (from capsicum) in conjunction with a coloring matter. These latter means for characterizing sugar have been tried in Holland. The pepper is said not to have any deleterious effect on the bees.

I think \$8.00 for sugar, page 616, Oct. 15, is a rather stiff price. The highest price I have had to pay this autumn was \$7.50, the tax included.

Wendhausen, Wildesheim, Germany.

[We believe it is true that bees sting more when working on buckwheat than when working on a source that is a slower and an all-day yielder like clover. When honey comes in with a rush, as it does from buckwheat, then slacks up and stops, bees become cross. When they are robbing in a wholesale way they become furious when the bee-keeper cuts off suddenly the supply. It has the same effect when nature stops the flow of nectar.

We knew that slow feeding had been exploited more in Europe than in this country. The scheme you show in the feeder is a good one and worthy of adoption in this country. We are convinced that slow feeding has come to stay here. For queen-rearing and brood stimulation it is invaluable. —Ed.]

Heads of Grain from Different Fields

Increase—How to Make it.

1. Which method is preferable in making rapid increase—the Bizzle way of allowing the nuclei to build their queen-cells after division, or the Somerford way of caging the queen and dividing after the colony as a whole has built and sealed sufficient cells? If the latter, what should be done with the queen in the mean time? and would it not be practicable to remove a couple of frames of capped brood and form one nucleus with her at once, and let the cells be built on the remaining frames? This would not deprive one of the services of the queen at all. Further, assuming that in neither case would there be any surplus stores, would there be enough difference in the condition of the nuclei at the end of the season to warrant one purchasing queens for each one when dividing?

2. I have three colonies—one Italian and two hybrid—and wish to increase to six the coming summer. I also want some honey. Now, if I divide my Italian colony (now in an eight-frame hive), and prevent swarming in the two other ones, it will make it, or if I increase by the method outlined by G. C. Chase, p. 655, Nov. 1, which is practically the Alexander way, I shall then have six. Which way, under ordinary circumstances, will be more profitable, taking into account the honey crop and outlook for the following year? Of course, in the former case I would have four Italian queens; in the latter, four hybrids; but as there are far more hybrids and blacks in this locality than Italians it is doubtful if all would be mated purely.

3. Another question: Suppose the Somerford plan is employed, and more than one cell is built on a single frame, and it is desirable to save the surplus queens to requeen black or hybrid colonies. I understand that West protectors can be used; but I have never seen the *modus operandi* described from the placing of the protector to the queen at work in the colony requened, nor even the time limit in removing the virgin from the protector.

4. I have read that combs of honey partly sealed would be taken down into the brood-chamber in the fall. I took the surplus from one colony about Sept. 25; but as there were two or three combs that were not entirely sealed I placed these in a full-depth super along with frames that I had cut the honey from, all but a starter, and put them on a colony to be cleaned up. One week later the hive was opened, and I found that most of the starters had been drawn out and were being filled, and the queen had left empty combs in the brood-chamber and laid about ten or twelve thousand eggs in the super, and went downstairs again. After the brood had all hatched I took the super off about Oct. 25, and there was not half a pound of honey in the brood-nest. I could not use the combs from the super, as they had been spread apart to get fat combs; and no more than six would go into it, so I fed them for winter. Why did the colony act that way? I took this super, cut out all the capped honey, and put the super on my Italian colony, and they will not move a drop of it. They all seem to be loafing around on the combs, and eating when they get hungry. As I let but five combs in it would they not be apt to choose it for a winter nest? What is the answer—Dr. Miller's "kick the hive and run" idea? I have tried this, but the bees seem to chew the comb badly.

5. In July, 1910, I had a black queen mate with a yellow drone, her progeny being 90 per cent banded—from one to three light-yellow bands. This year there has been a constantly increasing reversion toward the blacks, until at present there are not 40 per cent showing any bands whatever. Why? No. You said editorially, about a month ago, that you had never seen any particular feeling shown against newly hatched bees. A few weeks ago I saw a very young bee yanked out of the hive and thrown out in the grass. I picked it up at once but could not find anything wrong with it. It seemed sound in wind and limb, so I opened the hive and tossed the bee down on the frames, where it was instantly grabbed by as many as could reach it, and hustled down and out again. Why?

7. There was a question raised in GLEANINGS as to whether the bee-moth ever lays eggs outside of a hive. It does. I melted up some old comb—stewed it, in fact, for half an hour; then made it into cakes about four inches in diameter, and put a handful of them in a closet in my shop. About ten days af-

ter that, I happened to shift them and found wax-worms, about $\frac{3}{8}$ inch long, very busy making subways in it. As all eggs that might have been in it when the wax was rendered must have been hard-boiled, the wax must have been visited by the moth afterward.

Newfield, N. J., Nov. 9. G. E. NIGHTINGALE.

[1. We would recommend the Somerford plan. The queen that is caged is caged inside the hive, and you will find that the bees will build cells after she is confined, about the same as if she were out of the hive entirely.

2. We would advise you to make the division entirely with the Italian, and run the two hybrid colonies for honey—not because the hybrid colonies are any better for the production of honey, but because it is more desirable to have your increase of the pure stock of Italians. If you use drone-traps on the entrances of the hybrid colonies, and allow the drones of your Italian colony to have free flight, the chances are that the queens will be purely fertilized.

3. The surplus of cells can be put in a West queen-cell protector with a West queen-cage over the protector, so that, when the young queen hatches out, she will be caged therein. As it is usually very difficult to introduce virgin queens that are three, four, five, and six days old, we advise you to introduce as soon as she hatches, or as soon thereafter as possible.

4. When there is a little honey in the upper story of a colony, the bees sometimes take it down and sometimes they will not. A good deal will depend upon conditions. As a general thing, it will take a colony a good while to take the honey down from the upper story into the lower one, and, as a rule, they will not do it. A better way would be to extract these combs if you have an extractor; then put the combs in the hive and let the bees clean them up; then put them back in the honey-house for use next season. If you have no extractor, store the combs containing a little honey, and use them next spring in the brood-nest for spring feeding.

5. Referring to the black queen that mated with a yellow drone, it is hardly probable that her original stock would change after she once met the drone. It would be our guess that the original black queen had been superseded, and that her daughter had taken her place. This thing will happen very often, and a beginner would not notice the change had taken place, especially if the young queen looked very much like her mother, as she often does.

6. There must have been something that the bees discovered that was wrong with that young bee, and yet you failed to see it. From your statement we should conclude that the bee hatched prematurely. Such bees are never tolerated, for the reason they will never be of any use.

7. There has been a great amount of proof introduced of late, showing the bee-moth and the wax-worm will work in old combs or even in cakes of wax outside of the hive. Our old friend Dr. C. C. Miller was certainly wrong on this proposition. The best of us make mistakes.—ED.]

Bees Wintering Without Protection of Any Kind.

One of my neighbors has a colony of bees in a hive that stands on the top of a hill, and is not protected in any way. The brood-chamber is single-walled, and the owner never looks into it, although he gets considerable honey from the super every year.

My brother has a hive of bees that stands on a table, the top of which is not level by any means, for it looks as though it might almost fall over. The hive is single-walled, and the flat cover is badly warped, so there is nothing to keep the cold wind from blowing right in on the bees; but, at the same time, they wintered well last year.

I am wintering some of my colonies by piling cornstalks over the hives on the back and both sides. I put deep supers on the brood-chamber, with a few thicknesses of muslin underneath, confining the bees to the lower story. The corn fodder piled around serves as a protection.

Westfield, Ind.

A. L. BEALS.

[The two cases first mentioned are the exceptions that prove the rule. You are very wise in protecting your bees.—ED.]

In Hunting Queens, Look for the Bee with Short Wings.

I suppose every person has some contrast to look for in searching for a queen; and the more striking the contrast the sooner she is found. I don't know that I have seen in print the contrast that I always look for, and it strikes me the most forcibly in looking for a queen. It is this: Her wings look *very* short. We are looking at their backs, and the wings are the most prominent visible part. When I see the short-winged one I know it is the queen. Of course her wings are not short, but they look so on account of her comparatively long body.

Galena, Kan., Nov. 25.

J. P. BRUMFIELD.

[You have mentioned one of the important distinguishing characteristics that help much in finding a queen. Another characteristic that is often seen on an Italian queen is the color of her abdomen and hind legs. They are yellower than those of a worker. But the greatest help is the behavior of the bees toward her. This last is of great assistance in locating virgins, small and dark.—Ed.]

The Success and Enthusiasm of a Lady who, from a Start of a Nucleus, Increased to 53 Colonies.

You wish to know if I have found your journal interesting and helpful. I have found it very helpful, and much more interesting than I expected. When I bought my first bees I subscribed for your journal as an aid to the bee-work, but did not expect to be very much interested. I have found that bee literature can be very interesting as well as instructive.

You have touched on all the subjects that I desired most to know about, and I have never had to write for information. I started with a nucleus, and now have 53 colonies. I have lost only two in the cellar, and those were short of stores; neither have I lost more than two from spring dwindling. I knew nothing about bees when I began, except what I had learned in the A B C book.

I got all of my information from GLEANINGS, except what I have gained by experience. My bees have always paid their own expenses and something besides. I have all the honey I want to eat, and I count that considerable, for I am fond of it. I have enjoyed A. I. Root's articles on chicken-raising very much.

West Chazy, N. Y., Aug. 15.

L. VA. A. BROWN.

Brood-rearing in Mid-winter.

I should like to know if bees will hatch in the latter part of December in Chicago. I have 100 colonies. While the weather was warm, my bees started to carry in water. I opened the hive and found one comb partly filled with eggs. Do bees need water on account of the brood?

Chicago, Ill., Dec. 15.

R. J. K.

[It is not unusual to find brood in the central combs of a hive in December, especially when there has been as much warm weather as there has been this winter. Whenever there is brood-rearing going on, the bees need water; and that is why, on warm days through the winter, they make such efforts to find it. Very often brood started in winter is lost; for when cold snaps come, the cluster draws together, with the result that the brood, especially that on the outside, if the queen has started quite a little, is abandoned.—Ed.]

Stings Relieve Rheumatism at 80 Years of Age.

Although never very much afflicted with rheumatism I have, for some years, been troubled at times with pain in one arm, and during the last year it affected both arms, but generally only at night. I have some bees which have stung me occasionally; and as my pain has varied I have often thought that the stings which I got might have accounted for it.

Several months ago I had a strong dose of bee-sting cure. For some reason the bees took the notion of giving me a chastening for intruding on their rights, and it seemed as if a regiment had been sent to give a sharp notice, which they did without stint. I think over a dozen discharged their errand faithfully by giving me notice with their probangs; but for about two months I have had no rheumatic pain. I have had no pain at night as before. It has entirely left me.

Detroit, Kan., Nov. 29.

A. M. ENGLE.

Peanut Candy for Bees.

I bought two barrels of peanut candy. The nuts are weevil-eaten a little. I intend to boil and strain this and feed it to the bees this spring. Would it be safe to do it?

Salina, Kan., Nov. 22.

PHARO MILLER.

[In regard to the peanut candy that you have, we should be afraid that it is scorched and darkened in color to give the different flavors. If so, it would be a little risky to feed it to the bees, although if used directly for brood-rearing you might have no bad results. We usually think that the best grade of granulated sugar is the cheapest in the end. If you fed any amount of it in the spring, there would be some danger that some of it would be left over and stored in the sections, which would give the honey a bad taste and practically spoil it for market.—Ed.]

Too Much Pollen in the Hives.

Is there any thing to be done where the bees crowd every thing out of the lower story with pollen? I have just gone through my apiary, and find the hives good, bad, and indifferent in this respect. Some few colonies had only a small amount, having also plenty of brood and honey. Other hives had the lower-story frames almost entirely filled with pollen. These two last classes I have taken account of to see how they come out.

Ceiba Mocha, Cuba, Nov. 5.

R. H. BIGELOW.

[When a hive has an excess of pollen, the only thing to do is to remove the combs containing it and set them one side to be used the following spring. Such combs are often a valuable asset to the bee-keeper. During the winter we would not leave very much pollen in the hive. Give combs of sealed stores, the best you have, then let the bees work out a winter nest, which they will do if you give the stores to them early enough in the season.—Ed.]

Importance of Upward Ventilation for Colonies Wintered on Summer Stands.

The article on p. 664, Nov. 1, "Wintering Bees on Summer Stands," is truly "good stuff." One winter in Kansas I wintered fifty colonies with the loss of only one. This was one of my very best colonies; but it was in a new tight hive, with the oilcloth very carelessly left on under the blanket of chaff packing, so that the bees had absolutely no upward ventilation. I learned the necessity of top ventilation away back in the '40's in glorious New England, when we used the old-fashioned gum or box hive.

THE FIRST SWARM NOT ALWAYS A PRIME SWARM.

I have often known of a first swarm to be led by a virgin queen, and, therefore, to be what is known as an after-swarm.

Carlton, Col.

JAS. H. WING.

Corrugated Paper in the Top and Bottom of the Shipping-case.

That little discussion on p. 712 has stirred me up somewhat. It is one of the rare occasions wherein I differ with Dr. Miller. I should be glad to have a sheet of corrugated paper on both top and bottom of my cases, for the reasons that the editor has named; also because grocers often open the cases on the bottom, making the no-drip arrangement useless. It looks as if the sign "This side up" ought to remedy the matter, but it doesn't. If you will visit the freight depot in your town and take a look at the boxes so marked, you will find that the freight-handlers pay little attention to it.

Newman, Ill., Dec. 4.

C. F. BENDER.

A Good Record for a Beginner.

Last June I got some chufas and planted them about the 10th of July. I harvested them this evening, Nov. 17, and from one hill I got 264 nuts. How is that? I like them well when roasted. California seems to be well suited to them.

How is the following for increase? One colony to start with this year, six combs; increased to four colonies. All combs were built from full sheets of foundation. I have nine extra combs on hand, and took 40 lbs. of extracted honey. I sold one colony for \$5.00.

Sacramento, Cal.

A. D. MUNGER.

Our Homes

A. I. ROOT

NOTES FROM OUR FLORIDA HOME.

It is now Dec. 23; and although we have been here since Nov. 9 I have been so busy (and happy in my many busy tasks) that I have not until this very moment felt like taking time to say a word to the many good friends who are following me—that is, I have not found time to speak especially of this Florida home. Speaking about homes, there are more homes being started just now right here in Bradentown (that is, new houses building) than in any other place I ever visited that I can remember. Most of these homes are started by elderly people; and it is really inspiring, to me at least, to see old men flying around with the alacrity and enthusiasm of boys, helping the surveyor, making the cement blocks that all structures nowadays stand on, and a little later, helping the carpenter and doing a hundred things they perhaps never thought of before, because they are so anxious to get out of the little tent they have been living in thus far all winter until they could get up some kind of little house to live in. So great is the call for rooms that every house, almost, is full to overflowing, one little cottage sometimes sheltering temporarily several families. But this is no great hardship here, for out on the porch is usually a better place to sleep than anywhere indoors.

For the past two months there has hardly been a house-fly visible—at least around our home—and, so far as I am concerned, there has scarcely been a mosquito in evidence, although Mrs. Root declares she has found a few. Just at dusk I have been sometimes annoyed by the almost invisible sand-flies; but a single drop of citronella rubbed on my wrists and neck stops the annoyance at once. Crowded together as we are, there is not only great need but there is an excellent opportunity to show a Christian spirit; and I am glad to tell you we find it almost everywhere. You see most of us are comparative strangers; and it is not only a Christian duty, but good sense prompts us to be courteous and obliging to the new comers in our midst. I wonder if it isn't true that neighborhood quarrels are more common where people have lived a long while in the same place. If so, this is one good reason for going among strangers for a while.

One good brother writes me to know whether, if he has a cottage here in winter, it will be safe to leave it while he goes back north in the summer time. My answer is that our home has been thus left for many summers; and we not only leave all our furniture but eatables that will keep, and we have never lost a nickel's worth that I can discover. Our barn has never been even locked up where our gardening-tools, nails, hammers, and wrenches are kept; but when we get back every thing is just as we left it. Please consider we have colored people in great plenty all around us; but they are, as

a rule, educated and intelligent; but mark this: There isn't a saloon in Manatee Co., and *never has been*. The residents of Florida are, as a rule, all anxious to get people to come into their own neighborhood, even if they stay here only winter times, and on this account every one seems to unite in making it a safe place to leave while you are back home in the North during the summer time. There is something very enticing about the business of starting a temporary little home down in this mild and genial climate where one can work out of doors every day in winter, especially to elderly people who have, perhaps, builded several elaborate homes in the far North. It really does one good to figure out that many of the things we have been accustomed to are not really *needful*, and oftentimes we can actually be happier *without* them. Lots of people are found in barns or even sheds, and in "almost any old place;" and, judging by appearances, they seem to be quite contented and happy.

KEEPING CHICKENS IN FLORIDA; THE TRUTH ABOUT IT.

So many keep asking if they can come here in the winter and make money "keeping chickens" I have thought best to reply at some length. The greatest trouble is in getting *into* the business in the fall and then getting out of it in the spring when you go back north.

One spring, as I have told you, I turned over my flock to a neighbor at a rough guess of 50 cts. each in the spring, and was to take them back in the fall at what they were worth in the market. When I got round again he had been offered 75 cts. each; so, of course, I paid that price. He had what eggs he could get during the summer to pay for their grain; and with the 25 cts. advance in price he came out very well. As I took them back again after the moulting season was over, or mostly over, I did very well. Of course the question came up in regard to loss during the summer. I told him I would stand all the loss where it was no fault of management, and there was very little loss except a Leghorn rooster that cost me \$5.00. He was gone just before I returned, and no one could ever tell what became of him. Well, during the past summer, rump or something like it got among the chickens; and when I got around, there were only about 90 left out of about 140, big and little, turned over to him. Aside from this, everybody (that is, almost everybody) had unusual trouble about getting eggs during the past summer. Neighbors Rood and Abbott say the same thing; and another thing, this time I put in his care almost a hundred chickens of different ages, some of them only two or three weeks old. These, of course, would not be ready to lay, or at least to lay very little down here in Florida, in the six months I was away, and I tell you

it is rather expensive keeping chickens down here for six months without getting any eggs. Of course, there were some roosters to sell when big enough, and he sold about 20 and used some; but the 90 that were returned full grown cost me something like 50 cts. each for their "board and lodging" while I was north, aside from the eggs they laid. He said we would *both* be out of pocket the way it turned out, and I think he was right.

Right in sight out of the window where I am running my typewriter, just across the road from my five acres is another five acres. It was purchased just about a year ago by a gentleman from the North to go into the poultry business. He planned his buildings, including an incubator cellar, had the trees all cleared off, and bought and started his incubator just before I left in the spring. When we got back in November we found on the vacant lot, instead of the poultry-houses, etc., a big white board sign reading as follows:

For sale on easy terms, these lots,
52 by 136 feet.
Apply to _____

When I met him and inquired why the change in program, he replied something as follows:

"Mr. Root, you know as well as I do that there is no money in chickens in this locality. The feed costs ever so much more, and the prices are not as good as in the North; and any extra amount would glut the market."

I said, "How about eggs at 40 cts. a dozen?"

"Oh, yes! you can do very well with eggs; but I planned to raise broilers and roasters that sell in the North for 30 or 40 cts. a pound."

You see he failed to take into account the cost of feeding grain for months before he would be getting any returns. No wonder he decided on going into the real-estate business and selling his five acres cut up into little lots. Various reasons were given by different ones as to why hens didn't lay as usual; and Mr. Abbott declares his hens this year (at least some of them) have moulted *twice*. After I got my hens to laying I took seven dozen eggs into the store, and the clerk asked me how many hens I had. I told him about eighty. He replied:

"Mr. Root, I have a hundred hens, and I haven't had seven dozen eggs in *three months*."

My seven dozen were laid in three days. When he asked if I could tell him what the trouble was I told him I feared one trouble was he was not around with them enough to get acquainted with them. When I first got ours home we got only three or four eggs a day, and one day only two. They just stayed in the house and acted listless, and it was a full month or more before I could get them to come right up to me and be friendly.

GETTING ACQUAINTED WITH THE CHICKENS.

I told the young clerk in the store that the main reason why he had not seven dozen eggs in *three months* from his hundred hens was probably because he did not get acquainted with them. When I first got my ninety hens home I got very few eggs—one day barely two. They would run when I came near them as if they had no other idea in their heads than that I had just come out to chase one of them down for dinner; and, by the way, this is something that should never be done in a well-kept poultry-yard. Even if company does come unexpectedly, if "chicken dinners" is what you "keep hens" for, don't try for eggs at the same time. Well, I commenced at once getting into the good graces of the "biddies." Where we keep grain all the time before them in the suspended metal tubs, as I have explained, it isn't so easy to get them tame; but I tried to bring them some tidbit they liked, every little while, and I carefully avoided coming on to them with a rush so as to frighten them, always talking to them when I came near; and now when I go out mornings to let them out I say, "Hello, chucks!" before I am fairly in sight, and the Buttercup rooster always responds with a peculiar note to reassure any of the timid flighty Leghorn matrons. It took me fully six weeks to get them to running toward me when they saw me coming, and to run about and scratch and sing as a laying hen always does. Eggs are now 40 cts. a dozen; and 9 eggs, or 30 cts., pays for the grain for the whole flock, including the six Runner ducks, so you see all the eggs I get over 9 is profit; or, if it suits you better, *my* pay for the time taken in "getting acquainted."

Yesterday I got 33 hens' eggs and 4 duck eggs; and, by the way, I want to tell you I am getting four eggs from four ducks right along, although my neighbors who have the same ducks they got of me are not getting any such results at all. The old duck that laid 100 eggs a year ago without a break commenced Nov. 23, and bids fair so far (Dec. 27) to do the same thing again. Oh! I must not forget to tell you that one of my young ducks lays an egg as white as any hen's egg; and if she is fed on grain I think few of you would be able to tell them by the taste from hens' eggs. At present my six ducks spend most of their time in the drainage brook or canal, and they come so near getting their feed out of the water and along the margin that I give them only a little corn at night to make them come home, and another corn feed in the morning before they start out on their all-day raid. They are in such a hurry to be let out (so fond are they of the water) that they hardly stop for the corn in the morning. They usually have their four eggs laid by daylight, and welcome me uproariously when I come to raise the trap-door that lets them down into the creek. Once more let me say, it is *getting acquainted* with the ducks that enables me to get eggs when nobody else has any, or only very few.

Well, I have told you so many doleful stories about getting no eggs in summer and fall in Florida that I am glad to give you one on the other side. My old friend and neighbor, Mr. Raub, who did not commence with chickens until past 80, came back here in October; and during November, when nobody else was getting any eggs, he got 700 by actual count in that one month, from 50 laying hens. He and his chickens are not only good friends, but they are well "acquainted."

OUR AUTOMOBILE WHEN WE GOT BACK IN NOVEMBER.

I mentioned, as we were about going north last spring, the trouble with the coil to our machine. Well, after standing idle for six months during the summer time, it started off at almost the first turn of the crank, but, of course, it had the same trouble when starting as when we left in the spring—that is, on account of the defective coil it "limped" a little before it got warmed up. Sears, Roebuck & Co., however (according to agreement), had a new coil here almost on our arrival; and when this was put in place of the old one it worked so perfectly that it is really not only "a thing of beauty" but a wonderful convenience in taking Mrs. Root and myself wherever we want to go. During the spell of hot weather just at the close of the old year, some of our inner tubes in the tires began to play out, it is true; but they were just about a year old; and standing all summer in our hot auto house (which is but poorly ventilated) it was very likely not the best place for them. Neighbor Rood suggests that, when they are not in use, rubber tires should be kept protected from hot *air* and from *light*; and, down here in this hot climate, they should be placed in the coolest place possible. The tubes have been repaired; and as we are now having cooler weather they will likely do us considerable service yet. Even if they do fail soon, the cost of a set of inner tubes will be but a trifle compared with the comfort and convenience of having "a horse always ready to go, fast or slow," and no expense except when he is at work.

FLORIDA FRUITS IN WINTER.

When we arrived the neighbors told us our Japanese persimmons had borne a beautiful crop of fine fruit; but they got so dead ripe they were able to save only one fine specimen for us by tying it on the tree so it would not drop off. We regretted this, and have since purchased a tree that ripens a little later in the winter. After we had been here about a week, Wesley informed us there was a bunch of bananas ready to cut, and this great bunch supplied Mrs. Root and myself with the finest bananas I ever tasted, for nearly two weeks. They made a most pleasing and welcome addition to my "apple supper," and so far I have found them fully as wholesome as the apples. The variety we grow is called Hart's Choice. They are rather smaller than those usually

found in the market, but they are of a peculiar and most delicious flavor. Right close to the door of our auto-house is a large-leaved guava-bush. It is not as tall as I am, and yet it has given us 30 or 40 great fruits as large and as handsome as big beautiful pears, and, to my notion, no pear can equal them. Of course, most people have to get used to them; but a guava shortcake, as Mrs. Root makes them (with a duck egg), is ahead of any strawberry shortcake (for *me*) that can be made. The bush is really a sight with its branches bending almost to the ground, and one more turning yellow (and dropping off if they are not picked) every day. It is fun to see it putting out new blossoms, and green fruit of all sizes coming on all the while. To save inquiries I am glad to tell you that all the fruits and trees I mention here can be had of the Reasoner Bro's, whose nurseries are at Oneca, Fla., only four or five miles from our home. THE EWING BLACKBERRY; DYNAMITE FOR SETTING TREES, ETC.

Friend Ewing sent me four blackberry-plants to be tested here in Florida; and as I am greatly interested in the plan of making a hole for trees or plants with dynamite, I procured at our hardware store a stick with caps and fuse for 25 cts.; and by cutting the stick in four pieces we made four holes, or cavities, one for each plant. The charge was put down about three feet, and it made an egg-shaped cavity as big as a bushel basket, pulverizing the soil and subsoil for a much larger distance around, and making a most ideal condition for any plant or tree to grow. It is also claimed that the gases and chemicals liberated will for a long time keep away cutworms and other worms or insects that might prey on the tender new shoots. I don't as yet know just how true this may be; but my blackberries have all started to grow beautifully. We have since planted a dozen or more trees in the same way, and so far are much pleased with the plan.

MORE ABOUT LARGE FAMILIES.

I was awfully "beat" to see that letter published in the Oct. 15th issue. In regard to the boys helping me in the mines, the laws of Pennsylvania do not allow boys in the mines under 16 years of age, and the school laws require all under 16 to attend the common schools, and I have 7 going to school. Some of them, I am glad to say, have *never missed a day*, nor been tardy once in three and four terms, and have received certificates of merit from the county superintendent of schools. I have one boy, 16 years old last June, who is quite a help in many ways. This is a poor farming locality. Some farmers offer a boy 30 cts. a day for 12 to 14 hours' work or longer. With the high cost of every thing, that would hardly pay for clothes and shoe leather.

You say I suggest that a large family is a hindrance. I assure you, Mr. Root, such a thought never entered my head. At home with your family, big or little, is the best place on earth. Such are my thoughts. Children are never taken care of by others as their parents do it, and it *does* make one do some thinking at times. The happiest men and women in existence (or should be) are they who have good health. I get up at 4 o'clock, and walk a mile to the railroad; travel by rail 15 miles to the mines; enter the mine at half-past 7; leave at 4:10 P.M., travel 15 miles back, and get home at six, through all kinds of weather when able to work, as

this is all the work handy. There are 75 to '00 men who ride on this work train.

You suggest that a family might live on "boiled wheat," which would keep them healthy. Now let us get to conclusions as to what is the best diet for all. We must obtain the facts for this from the accumulated experience of men under various circumstances. Take the Chinese and Hindoo rice-eaters. They are not superior races of people, neither are the flesh-eating Esquimos nor the fish-eating people of Norway and the Pecheras of South America. Either vegetable or animal food a man can live on; but the decision of those in authority is that a mixed diet is best for the average. Take the American—he is always blamed for eating to excess. Where can you find a superior race of people with their mixed diet? Nature's first food is animal food. Milk—what is better? Look at young birds. They are fed wholly on bugs and worms until grown up. Three Springs, Pa. W. S. COHENOUR.

Why, my good friend, you are a rich man already—richer by far than many millionaires, in my estimation. I quite agree with you that the happiest people in the world are those who are obliged to get up at four o'clock, or something like it, and keep busy at something until bedtime. I am usually up at about four o'clock to let the chickens out before they begin to worry, and I keep busy at something until nine or ten o'clock at night. In regard to dieting, if I am correct, Dr. Wiley argues just about as you do; but I still think that I could get along very well and be satisfied and happy with boiled wheat, especially if I had a bowl of milk to go with it, and a little honey or some maple molasses. Notwithstanding, when I feel that I am rather running down, two or three meals with good beefsteak, or, better still, ground meat, nicely broiled, is about the best medicine in the world to get my digestion back into good trim. Perhaps, my good friend, you and I will not live long enough to see what those children you have been talking about will amount to; but with the bringing-up you are giving them, it would not be surprising if one or more should turn out to be millionaires, or something a great deal better for the good of humanity.

INDIAN RUNNER DUCKS, ETC., IN IDAHO.

Dear Mr. Root:—Yesterday, when I got GLEANINGS from the postoffice, a neighbor said to me "I see you get some circulars too." I told him it was GLEANINGS, and added that it was one of the publications that I really read, although I never owned a bee in my life. I am planning to make next spring a start, for it is an awful waste of good honey to let all these alfalfa-fields bloom without a beehive to the square mile.

I read GLEANINGS backward. First I read the poultry department and then your home department—then editorials and Dr. Miller. I happen to know Dr. M., whose smile "never comes off," and I like to read after him.

I read with approval what you had to say of sterilizing certain kinds of criminals. Last winter the legislature of the State of Washington passed a sterilization law, and the other day a man who attacked a girl was condemned to a term in the penitentiary and to sterilization—the first time such a penalty has ever been given a man in this country.

I note in GLEANINGS for November 15, that a correspondent gave up Indian Runners because they laid tinted eggs, and few of them. He says his ducks were fawn and white. Fawn and white Runners nearly always lay more or less tinted eggs; but the penciled variety invariably produces white eggs, and also lay better than the fawn and white; because to get fawn and white, very close and indiscriminate inbreeding has been resorted to. As

to white Indian Runners I have lately learned something of them. I was at Stockton, Cal., a few days ago, judging the poultry show there, and met a lady who told me that she had penciled Indian Runners, and concluded to get some white ones. She paid a high price for some white ducks from a well-advertised strain; but they proved to be such poor layers that she sold her stock and now keeps only the penciled variety.

I am interested in finding proof that Runners need water to swim in in order that they may mate properly and produce fertile eggs. I am inclined to think you are right about it; if so, this complicates the matter for a good many.

I want to congratulate you on your courage in "saying things" about advertisers who overstate matters. Sometimes I think I say too much, and at other times I am somewhat afraid my spine is a little defective.

We are having delightful weather here—cold at night, but bright sunny days and snow-capped mountains in every direction. It is a beautiful country. Every time I go to California, Washington, or Oregon (and I am called into these States often), I come back glad to see Idaho.

Wendell, Idaho, Nov. 22.

MILLER PURVIS

SWEET CLOVER IN SOUTH DAKOTA.

The following from the St. Paul *Dispatch*, dated Pierre, S. D., Sept. 13, is another illustration of the way in which humanity, even good farmers, have been neglecting one of the most valuable legumes God ever gave to mankind, and treating it as a noxious weed.

T. J. Steele, of Sioux City, one of the owners of the Steele and Goudy ranch in western Sully County, feels confident that one of the coming forage-plants of the Northwest is sweet clover. This plant, which has been spreading over the Missouri Valley, making a heavy growth wherever it has secured a foothold, regardless of adverse weather conditions, and showing an ability to thrive on the prairie with but little rainfall, has been looked upon as a pest to be exterminated if possible. But Mr. Steele says it has been proven to him by tests that, if it is handled as is alfalfa, cutting it while tender, and before it becomes woody, it makes one of the best of stock foods; and that it can be grown successfully is made evident by its rank growth wherever it has secured a start on the prairie. It is claimed to be just as good for hogs as for cattle.

Mr. Steele is hunting for a supply of the seed to start a field of it on his Sully County ranch, and to give it tests. It is a fodder for which stock must acquire a taste; but when they once take to it they eat it readily, and the results have been shown to him by men who have tried it.

BOOMING SWEET CLOVER.

There seems to be a boom on in sweet clover. We were among the earliest of farm papers to call attention to the value of this long-despised cousin of alfalfa, and are glad to have our judgment verified. But booms are unsafe things, and a word of caution may well be dropped.

Sweet clover is a money-maker to the farmer who can grow it successfully. But because it is a way-side weed it must not be assumed that it will grow successfully of its own accord. There is a trick to sweet-clover growing which must be learned, or failure will be met with. It has about the same feeding value as alfalfa. It will grow in localities where alfalfa fails. It prepares the way for alfalfa on the same ground. It makes good hay and furnishes good pasture. It renovates the soil. But it is not as good a plant as alfalfa for the purpose for which alfalfa is grown—that is, we don't think it is. —*Farm and Fireside*.

One farmer reports success in killing quack-grass with sweet clover. In view of the fact that the sweet-clover crop, for either pasture, hay, or seed, is almost as valuable as alfalfa, and that it is a great soil-renovator, quack-grass and Canada-thistle victims may well look into the matter. —*Farm and Fireside*, Dec. 9.

Temperance

"HURRAH FOR HOBSON!"

Why can't we have him for President of the United States? I clip the following from *The Union Signal* of Dec. 7:

HON. RICHMOND P. HOBSON INTRODUCES A PROHIBITION AMENDMENT.

On Dec. 4, 1911, Congressman Hobson introduced in the House of Representatives the following joint resolution, which was referred to the Committee on Alcoholic-liquor Traffic, and ordered printed:

Joint Resolution proposing an amendment to the Constitution, prohibiting the sale, manufacture for sale, and importation for sale of beverages containing alcohol.

Whereas, exact scientific research has demonstrated that alcohol is a narcotic poison, destructive and degenerating to the human organism, and that its distribution as a beverage lays a staggering economic burden upon the shoulders of the people, lowers to an appalling degree their average standard of character, thereby undermining the public morals and the foundation of free institutions, inflicts disease and untimely death upon hundreds of thousands of citizens, and blights with degeneracy their children unborn, threatening the future integrity and the very life of the nation: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled (two-thirds of each House concurring), that the following be proposed as an amendment to the Constitution, which shall be valid to all intents and purposes as part of the Constitution when ratified by the legislatures of three-fourths of the States: 1. The sale, manufacture for sale, and importation for sale of beverages containing alcohol, are for ever prohibited in the United States and in all territory under its jurisdiction.

2. Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

LIQUOR TRAFFIC IN PROHIBITION STATES.

The following was clipped from the *Chicago Advance* (Congregational), and you will notice they clipped it from the *Herald and Presbyterian* (Presbyterian); and if the Baptist brotherhood and the Methodist Church will now indorse it and publish it I think it may do a lot of good. It is just what I have had in mind; but it is told so much better than I could tell it I have copied it entire.

A great deal has been made out of the fact, if fact it is, as stated by the Interstate Commerce Commission, that 20,000,000 gallons of liquor are shipped annually into the nine prohibition States. A great deal *should* be made of it. One is, that every gallon carried into this territory was disposed of contrary to law, by law-breakers and criminals and anarchists, and that the United States furnished tax certificates to many of these anarchists, and gave them a form of protection and respectability in their criminal operations. This ought to be, and *must* be, stopped. No nation claiming a Christian civilization can afford to override or to discourage the moral aspirations and efforts of its people, especially as expressed in the regular form of State laws, as our nation is doing in encouraging anarchist liquor-dealers to break down the prohibition laws made in nine of our States for the protection of the homes and the people.

But another thing being made out of the fact of this importation of liquor into prohibition States is (and a most abject and discreditable thing it is) that prohibition does not prohibit, and, consequently, should be done away with! Why does it *not* prohibit? Because there are some criminals who are breaking the law, and some criminal officers who are not enforcing it, although they are under oath to do so, and are paid for doing so.

Their argument, however, is that, because some law-breakers break the law, they ought to be rewarded for their opposition to the law by having the law repealed.

But it is well to consider the proportions of this feature of the importation of 20,000,000 gallons of liquor into prohibition States. It means that the people of these nine States consume less than one gallon and a quarter per capita, while the per-capita consumption of the people of the other States is 25 gallons a year. Thus even the horrible conditions brought about in the prohibition States by boot-leggers and blind tigers and all other disreputable means for the anarchistic disposal of liquor are only one-twentieth as bad as in the other States, where the saloon is regulated and well ordered, and moral and lovely, and 25 gallons of liquor is consumed on an average by the people every year. The city of Chicago alone, with only 2,000,000 people, consumes 12 times as much liquor as 15,000,000 in the prohibition States consume.

If our good folks in Medina feel inclined, I should like to have extra copies printed for free distribution. They might open the eyes of the good people in Ohio who are making such haste to vote back the saloons because, as they are told, "prohibition does not prohibit."

"WET AND DRY" IN THE RECLAIMED COLORADO DESERT.

Mr. Root:—I have been very much interested in your temperance department, and think perhaps you will be interested in the fight which is now on in Imperial, between the good citizens and the saloon interests. Imperial County (which is the reclaimed Colorado Desert) has been dry since its birth; but a "local option" amendment to our State constitution, passed at the last election, takes the power of prohibition from the counties and gives it to towns; and the brewers of Los Angeles are taking advantage of this to try to force their abominable products upon Imperial Co. The full-page advertisement which I inclose will show you what pitiful arguments they put up in favor of their proposition. The "Progressive League" is composed of the "Pool Hall" and "Blind Pig" element of Imperial. The business men are, I think, without exception, opposed to the saloon. It is too bad that woman suffrage, which has just been passed at a special election, is not yet in force; for if the *women* of Imperial had a vote, the town and county would certainly *remain* dry.

El Centro, Cal., Oct. 24, 1911. D. P. BOTTROFF.

Then follows a full-page advertisement gotten up by the brewers to prove that a careful and well-regulated saloon is better than prohibition—that is, no saloon. Now if these liquor people would just point to a city that is prospering under the reign of the "well-regulated" saloon, it would be a curiosity.

"SLEDGE-HAMMER" BLOWS FOR TEMPERANCE; WHAT A METHODIST PREACHER SAYS.

A few weeks ago in the home of Mr. Wallace Gridley, of Edgewood, Cal. (a very enthusiastic bee-man), I read in your magazine a splendid temperance sermon for which I want to reach a fraternal hand across the country and say "shake! hurrah for you! do it again." Mr. Gridley, who is also a most ardent anti-saloon man, has since given me several copies of the same article in leaflet form, which I shall distribute, hoping and praying they will help us make California dry. It is an awful fight we are in; but such articles as I have mentioned will strike a blow like a veritable *sledge hammer*. God bless you! do it again.

Sisson, Cal., Aug. 1.

JOHN F. KELLOGG.

Gleanings in Bee Culture

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Editorial

THERE will be a meeting of apiary inspectors, and others interested, at Amherst, Mass. See special announcement on p. 25.

WE expect to have in our next issue something more to say on the subject of putting lime in the soil to make clover grow on land that has hitherto been considered "clover-sick." Clover in the years gone by has used up the lime in some soils, and it is now time to replace it. It can be done very cheaply.

THE OHIO STATE BEE-KEEPERS' CONVENTION.

THE attention of Ohio bee-keepers is directed to the program of the Ohio State Bee-keepers' convention, to be held at Springfield, O., Feb. 21, on page 25 of this issue. Entomologist Shaw, chief foul-brood inspector, will be present. An effort has been made to get Dr. E. F. Phillips, of the Bureau of Entomology, to come also. This will be an interesting and important meeting. We expect to be present ourselves, and hope that all bee-keepers who can will make an extra effort to attend.

SPECIAL NUMBER ON AUTOMOBILES.

WE are now planning to have our April 1st issue a special number devoted to the interest of the bee-keeper who owns an automobile, or who intends to purchase one. There have been many requests for this; and for the past few months almost every mail has brought us letters of inquiry from prospective purchasers. We are always glad to give information regarding different machines when we can; and in order to call out the experience of others we have planned this special number. We already have several interesting articles on hand, together with some good illustrations; but we are anxious to get a good many more. Let all those who own machines tell why they bought them, whether they are profitable from a business standpoint, etc.

What machine do you own, and why did you get it? Has it proven satisfactory? If you have owned it as long as a year, what has been your expense for repairs?

We are especially anxious to get photographs of various machines in use. We shall expect to pay for all contributions used, especially where photographs are sent that can be reproduced.

SENDING HONEY OR OTHER COMMODITIES BY FREIGHT OR EXPRESS; A FEW FACTS TO REMEMBER.

A SHORT time ago a subscriber wrote us that he had shipped some honey to a commission house, and could get no returns. The case was something like this:

The commission house, it seems, made this bee-keeper an offer for his honey delivered in their city. The bee-keeper did not accept the offer, as he said it was too low. He wrote back that he would have to have more money than they had offered. He received a letter from the commission house, accepting his figures. The honey was shipped; but on arrival it was found to be badly broken down. The commission house would make no returns, and the bee-keeper finally appealed to us. We replied by saying that if he, the bee-keeper, had accepted the price offered by the commission house, f. o. b. city of the commission house, he would be compelled to accept whatever terms of payment the commission house could make, after making reasonable allowance for breakage; that his only recourse would be to put in a claim against the railroad company for the difference between what he received and what he would have gotten if the shipment had not been damaged; but as the commission house had accepted the honey f. o. b. station of the bee-keeper, it was up to them to make full returns on the basis agreed upon, and then enter claim for loss against the railroad company.

The moral of this whole thing is, that it is to the interest of the bee-keeper to have the honey delivered into the hands of the railroad company of *his own town, and no further*. It is equally obvious that it is to the interest of the buyer to secure, if he can, delivery of honey to his city.

There is one other point to be considered, however, and that is this: If the bee-keeper puts up his honey in a careless and improper manner, neither the buyer nor the rail-

road company could be compelled to pay the full loss, if they paid any thing. The loss would then fall on the producer. It is, therefore, important that the bee-keeper put up his honey in the most approved style, using modern well-made shipping-cases; and if he can prove that the honey was delivered at the railroad station in good order, any loss or breakage in transit can then be recovered from the railroad company by either the consignee or shipper.

Another case arose some little time ago. A bee-keeper shipped his household goods from a southern city to a northern. He prepaid the freight to the agent at the starting-point, which was \$12.00. This charge was based on an estimated weight of the goods. When the goods reached the northern city the agent at destination demanded \$3.85 more, which was paid. A short time later the railroad company demanded \$5.50 more. The bee-keeper demurred, and wrote to us, asking for his rights in the matter, saying that the railroad company threatened that, if he did not pay, he would be held liable to a fine of \$3000 and a term in the penitentiary. He was willing to pay what was right, but he did not propose to be imposed on.

We replied, saying he made a mistake in not knowing the exact weight of the goods when they were shipped; that the railroad agent at the starting-point had no business to "estimate" the weight. But this thing is done very often; but if any trouble arises it always falls on the shipper; and in this case it seems that, when the goods arrived at destination, the estimated weight was found to be too low, and the agent at that point figured up the difference and demanded \$3.85. Later on, the railroad company discovered that the *rate* made in the first place was wrong, and this necessitated additional payment.

We do not wonder that our correspondent thought he was being imposed on; but the facts are, the railroad company had the advantage. If the poor shipper does not pay the full amount required by the rate and the weight of the goods, the Interstate Commerce Commission when appealed to can compel him to do so or take the consequences, and the consequences are something serious. We do not know whether the railroads of the country have secured a set of laws in their favor or not; but clearly they have the advantage in such cases over the shipper. On the other hand, there is no rule but what will work *both* ways. If the shipper can prove that the weights made by the railroad company were too high, or that the rate charged was in excess of the proper amount, and appeals to the Interstate Commerce Commission, that body will require the carrier to refund the difference.

Moral 2.—Carefully weigh your goods before you ship them; then when the railroad agent weighs them again, make sure that his weight corresponds with yours. If there is a discrepancy, ascertain where the mistake is before the goods are shipped. Second, ascertain what the rate is on the class

of goods shipped. Make the agent show you the schedule. Keep all of your records; and then if there is any trouble, and the shipment is a large one, present the facts to an attorney.

DOUBLE-WALLED PACKED HIVES V. SINGLE-WALLED WITH A PAPER COVER.

THE readers will doubtless be interested in the symposium on this general question in this issue, on pages 73, 74, 75, 76, and 77. It is our opinion that this question of packing, absorbents, and size of entrances, is more dependent on locality than we had, perhaps, supposed. Mr. A. C. Miller, an excellent authority, seems to prefer the single-walled hive with black paper for a winter wrapping, or, rather, perhaps we should say, he concludes that there is no advantage in having the walls made thicker. He prefers large entrances on the *sides* of the hive and sealed covers. While he says nothing about sealed covers, he makes no provision for the moisture to escape upward, but, rather, to pass out through an entrance of ample dimensions. We do not question the accuracy of his judgment for his locality; but from exhaustive tests we made some years ago we are thoroughly convinced that bees in single-walled hives in this locality, even with paper covers, either died outright or were so weak in the spring as to be good for nothing for honey-production the following season. We did not at the time take any readings of the inside and outside of such hives; but we see no reason to question Mr. Miller's statement, that the difference in temperature between the outside and inside would be very slight with so large an entrance, and with walls so thin.

It is probably true that a contracted entrance, whether in a single-walled or double-walled hive, would not be advisable in his locality—that is, providing no upward ventilation were allowed. But conditions in other localities are so different that we feel very certain that the plan he recommends would not work in most of the colder climates; and Mr. Holtermann and Mr. Byer seem to be equally certain that they must have more packing for their localities. Mr. J. E. Crane, who is visiting us to-day, Jan. 20, expresses himself as decidedly favoring the views taken by Mr. Byer and Mr. Holtermann, and Mr. Crane is one of our most successful bee-keepers in Vermont.

Perhaps an illustration would help to make it plainer why we favor a double-walled packed hive rather than a single-walled hive. During the past season we built a small garage for storing an automobile. The structure was made of $\frac{7}{8}$ lumber planed on both sides, and painted on the outside. This made a single-walled building, for we did not think it necessary to go to the expense of making double walls, because the building could be easily heated by exhaust steam from the factory. Now, it happened that a radiator in one of the living-rooms in our house was altogether too large for the size of the room. The temperature would go up to

80 and even 90, even when the weather was very cold outside. This room had two outside exposures and two good-sized windows; but the house was sheeted with inch pine lumber on the outside, and over this was nailed tar-felt paper. Over the whole was nailed ordinary siding. The inside walls were lathed and plastered in the usual way. It was very easy to warm this room in the house with that radiator.

Now, it happened that the inside cubic contents of the garage were about the same as those of the room. We concluded that, if that radiator was too much of a good thing for a double-walled room, it would be just about right for a single-walled room of four sides and a roof of exposure. What was our amazement when we found that, even in moderate weather, this big radiator would not make the garage warm enough so that the motor would start readily. When the temperature was down to zero outside, the temperature inside of the building was far below freezing. When that radiator was in the house, in a double-walled room, it would run the temperature up to 80 while the mercury outside was at zero with a high wind. We were at a loss to understand why this garage should be so cold with a radiator going all the time, night and day. On placing the hand on the siding we saw the reason at once. The boards were as cold as a block of ice. Indeed, it became very apparent to us that the outside cold penetrated those $\frac{3}{4}$ boards to a much greater degree than we ever supposed. So little did they keep out the cold that a pail of water would freeze solid within two feet of the radiator.

Now, then, to the application. A colony of bees, even though it be contracted down to a comparatively small ball, is a miniature radiator, i. e., a source of heat. The closer a thermometer is placed to this ball of bees, the higher the temperature will go, providing the entrance is not too large. Now, if this little ball of bees is a radiator, and if those bees have to keep up their body heat by consuming honey, the colder the atmosphere *around* the cluster, the more food will be required. Overfeeding is quite sure to cause dysentery before spring. If the hive is single-walled, an immense amount of cold will penetrate those walls, making the problem of the bees to keep the cluster warm much greater. The thicker the walls, the larger the cluster, and the more it can expand over the food. It would seem that, for most localities, a moderate entrance with a double-walled packed hive will give better results in wintering than a single-walled hive or one protected by any kind of single thickness of paper. The question of the size of entrances and of upward ventilation or sealed covers will depend largely on locality. We are beginning to favor a flat board laid on top of the hive, not sealed down. This permits a moderate entrance and a slight amount of upward ventilation, but not enough to make the packing above damp.

The thermometer readings inside and out-

side of the hive by Mr. Byer and ourselves on pages 77 and 78 would seem to favor double-walled packed hives. The actual difference is anywhere from 20 to 40 degrees where the outside temperature has not taken a sudden change. A zero atmosphere or a few degrees above must be bad for a cluster, especially if it continues for days.

THE CENSUS OF 1910; THE MARKED DECREASE IN THE NUMBER OF BEES ON FARMS, AND WHY.

BEE-KEEPERS have been waiting with interest for the returns on the bee-keeping industry from the Census of 1910. Part of the data is now available and is presented herewith, together with similar data from the Census of 1900. That there has been a decrease in the number of farmer bee-keepers, there can be no question. Whether the tables showing this decrease by States are accurate we can not say; but decrease there surely has been. This is probably due to two causes; viz., 1. To a reduction in the amount of clover grown, either because intensive agriculture has crowded it out, or because soil that once grew clover luxuriantly has become "clover-sick"—that is, too acid. Clover is the main dependence for honey in most of the States east of the Mississippi and north of the Ohio. It is a notable fact that clover doesn't yield as it did in the olden days before the lime had been exhausted from the soil. When "bees don't pay" on the farm, they die off because the farmers won't feed them. We shall have more to say about this at a later time. 2. The other cause for reduction in the number of farmer bee-keepers is clearly traceable to bee disease that has made such rapid spread. The obvious remedy is to work for more extensive bee-inspection work and, besides, preach the doctrine of putting lime in the soil. That can be done cheaply, and make clover grow as before. While lime can have no effect on bee diseases it will make clover grow as it did in old days.

Attention should be called to the fact that these data are for bees on farms only, and that bees in towns and cities are not included. The official designation of a "farm" actually includes many apiaries in towns; but, as is well recognized, most of the large town apiaries have not been included in the enumeration. At one State bee-keepers' convention last winter it was found that approximately three-fourths of the bees there represented had not been included in the count. It is obviously not at all fair to the bee-keeping industry to count only the bees on farms when many of our largest bee-keepers are not on farms, but are in small towns or even in our larger cities. It is understood that no enumeration was made in the Census of 1910 of bees in towns and cities, and it is hoped that, before another census is taken, the authorities in the Census Bureau will learn that bee-keeping is not confined solely to farms.

The data presented shows a decrease of

116,408 in the number of farms reporting bees, and of 795,719 in the number of colonies reported. The valuations put on colonies of bees by many bee-keepers are of little significance; but it is interesting to note that these valuations show an increase of \$193,139. The only States showing any increase in bee-keepers, worthy of serious consideration, are Minnesota, Oklahoma, South Dakota, Washington, Montana, Wyoming, and North Dakota—all western States. The greatest reported loss is in Utah, where a decrease of 49.5 per cent is shown in the number of farms reporting bees. It is worthy of consideration that the loss in number of farms reporting bees is usually greater than in the number of colonies, indicating that those now in the business are keeping more bees.

Bee-keepers should not take any of these figures too seriously, for they certainly are not an accurate representation of the industry. Apiculture was never in so good condition as it is now. As an indication of this, it may be stated that the demand for

supplies during the last decade exceeds that of any previous period, and the markets for honey are continually improving. Honey production is fast becoming the business of the specialist, and, as a result, honey is being marketed in better shape and in larger quantities.

While it is true that these figures are not to be taken as seriously as the Census Bureau might wish them to be, yet it is a good thing for us to realize that there has been a falling-off in one part of the industry. If, as suggested, the brood diseases are a factor in this decrease, it emphasizes the necessity for spreading information on this subject so that those bee-keepers who have it in them to be good bee-keepers may be informed on this subject. Nothing will save a careless bee-keeper when disease reaches him.

In spite of these figures, there is no reason to doubt that there will be more colonies of bees in the United States in 1912 than ever before, and that the industry is on the increase.

STATE.	Farms report- ing bees in		Per cent of gain or loss.	Colonies report- ed in		Per cent of gain or loss.	Value in dollars.		Per cent of gain or loss.
	1910	1900		1910	1900		1910	1900	
Alabama	23,911	32,100	-25.5	135,140	205,369	-34.2	213,000	288,000	-26.0
Arizona	441	489	-9.8	23,770	18,991	+25.2	104,000	66,600	+56.7
Arkansas	19,692	22,182	-11.2	92,731	111,138	+16.6	200,000	204,000	+2.1
California	6,869	6,915	-0.7	200,718	129,444	+55.1	728,000	364,000	+100.1
Colorado	3,563	4,518	-21.1	71,434	59,756	+19.5	309,000	195,000	+58.5
Connecticut	1,798	2,252	-20.2	9,445	11,438	-17.4	41,800	40,500	+3.2
Delaware	1,119	1,684	-33.6	6,410	10,187	-37.1	13,609	20,244	-32.8
Dist. of Col'a	13	7	+85.7	151	59	+155.9	790	199	+297.0
Florida	4,345	4,521	-3.9	38,895	39,753	-2.2	98,500	83,800	+17.5
Georgia	23,167	32,246	-28.2	130,549	187,919	-30.5	187,000	243,000	-22.9
Idaho	2,368	2,387	-0.8	21,903	19,240	+13.8	100,000	65,000	+54.1
Illinois	29,741	34,932	-14.9	155,846	179,953	-13.4	487,700	486,200	+0.3
Indiana	19,487	28,632	-31.9	80,938	117,148	-30.9	230,500	278,900	-17.4
Iowa	28,935	28,977	-0.1	160,025	138,811	+15.3	517,300	443,900	+16.5
Kansas	16,869	18,295	-7.8	73,737	88,594	-16.8	218,600	278,000	-21.4
Kentucky	36,854	44,974	-18.1	152,992	203,820	-24.9	419,000	527,000	-20.4
Louisiana	4,928	6,148	-19.8	29,591	35,231	-16.0	58,200	54,300	+7.1
Maine	1,374	2,496	-45.1	7,592	10,857	-30.1	40,400	51,500	-21.6
Maryland	4,186	5,098	-17.9	23,156	28,013	-17.3	61,600	61,000	+1.0
Massachus'tts	1,597	1,799	-11.2	7,464	8,381	-10.9	39,700	35,800	+11.0
Michigan	16,892	18,122	-6.8	115,274	100,397	+14.8	446,500	352,500	+26.7
Minnesota	9,522	6,078	+56.7	56,677	45,877	+23.5	221,800	167,900	+32.6
Mississippi	16,028	17,990	-10.9	74,350	95,257	-21.9	144,000	159,000	-9.1
Missouri	40,110	41,145	-2.5	203,569	205,110	-0.8	585,000	508,000	+15.0
Montana	795	234	+239.7	6,313	1,801	+250.5	32,100	8,100	+294.5
Nebraska	12,538	12,190	+3.4	45,625	52,143	-12.5	153,000	200,000	-23.5
Nevada	176	278	-36.7	8,401	5,692	+47.6	48,500	20,100	+140.7
New Hamp'se	1,002	1,288	-22.2	4,644	5,520	-15.9	23,600	24,700	-4.3
New Mexico	418	410	+2.0	10,052	6,164	+63.1	46,300	20,800	+122.6
New Jersey	1,627	2,327	-30.1	10,484	14,118	-25.7	41,600	39,200	+6.0
New York	15,279	22,738	-32.9	156,360	187,208	-16.5	647,000	594,000	+8.9
North Caro'a	36,258	41,051	-11.7	188,998	244,539	-22.7	387,000	430,000	-10.1
North Dakota	79	30	+163.3	495	279	+77.4	3,088	1,474	+109.4
Ohio	23,203	34,458	-32.7	98,241	151,391	-35.1	276,000	403,000	-31.5
Oklahoma	4,816	3,438	+40.1	19,411	20,137	-3.7	64,300	45,400	+41.5
Oregon	8,861	8,895	-0.4	47,285	55,585	-14.9	150,000	160,000	-6.4
Pennsylvania	22,297	28,962	-23.0	124,830	161,670	-22.8	478,000	532,000	-10.0
Rhode Island	285	370	-23.0	1,267	1,681	-24.6	6,100	6,800	-9.7
South Caro'a	12,528	16,272	-23.0	75,422	93,958	-19.7	135,000	143,000	-5.6
South Dakota	1,347	387	+248.1	6,553	2,063	+217.6	31,600	10,100	+213.1
Tennessee	30,712	38,225	-19.7	144,479	225,788	-36.0	341,000	487,000	-30.0
Texas	37,875	60,043	-36.9	238,107	392,644	-39.4	675,000	749,000	-9.9
Utah	1,873	3,037	-49.5	26,185	33,818	-22.6	123,600	111,500	+10.9
Vermont	1,124	1,878	-40.2	10,215	12,836	-20.4	44,300	47,000	-5.5
Virginia	22,437	25,774	-12.8	104,005	139,064	-25.2	303,000	308,000	-1.9
Washington	5,886	1,435	+32.7	33,884	30,870	+9.8	127,000	107,000	+18.8
West Virginia	24,035	25,240	-4.8	110,673	111,417	-0.7	388,900	375,600	+3.5
Wisconsin	10,391	10,535	-1.4	95,638	106,090	-9.9	360,500	377,000	-4.4
Wyoming	579	153	+278.4	4,596	1,020	+350.6	20,493	5,322	+285.1
Grand total	590,907	707,315		3,462,520	4,258,239		\$10,372,978	\$10,179,839	

A dash (—) before a number indicates a loss; a plus-mark (+) shows a gain.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A FIGHT between queens is mentioned as an attraction at a bee convention in *L'Apiculteur*, p. 466.

DR. WEYGANDT says the Caucasian is the original race of bees from which all others are derived.—*Bienen-Vater*, 334.

THE WARDEN of the Illinois penitentiary at Joliet, Ill., says that 90 per cent of the men are there on account of liquor, and that out of 158 life men all but four or five committed the crimes for which they are in prison for life while under the influence of liquor.

PLEASE ALLOW, Mr. Editor, an addendum to the good advice given p. 26. When the colony attacked by robbers is carried into the cellar, set in its place an empty hive of similar appearance. If you don't, the robbers will pitch into the next hive. Besides, if you leave the place vacant, when you put the hive back again the robbers will notice the change, and will say, "There's our prey back again." [Good correction! Thanks.—ED.]

DER DEUTSCHE IMKERBUND (German Bee-keepers' Confederation) now numbers 82,547 members.—*Bienenzucht*, p. 183. We have a few things yet to learn from the Germans. [It would be interesting to know what is the basis of their organization. Is it fostered by the state? or do the members pay annual dues and receive something in return which justifies them in renewing year after year?—ED.]

YOU ASK what's the difference between a comb in a brood-frame and a comb in a section. None if the comb is the same. But in a section it is not expected brood has been reared, and it is expected in the brood-frame; and my experience is that moths greatly prefer the old black comb. You ask why the moth should not lay eggs in sections if she lays in combs that have been fumigated or frozen. I don't know. May be the cocoons make a difference.

SIX COLONIES of bees, well packed, were successfully shipped in winter, in Hungary, 335 miles by rail and 2½ by wagon, during the last of their journey enduring a temperature of 20 degrees below zero, Fahrenheit.—*Leipz. Bztg.*, 154. [We believe it to be entirely possible. Trouble, if any, probably would not manifest itself immediately but later on. If the bees were set down on stands outdoors we should expect the disturbance would cause a heavy mortality later on. If, on the other hand, they went into a cellar where the conditions were ideal, no bad results would probably follow.—ED.]

DR. HERING, *Bienenzucht*, XI., quotes GLEANINGS as recommending the feeding of thin syrup in the open to prevent robbing at late extracting, and says, "We doubt whether this will have any result. The

strong aroma of the extracted honey and the odor of the open colonies will, of course, attract the robbers more strongly than the thin syrup." But, doctor, you have to believe what you see, don't you? [GLEANINGS never advocated feeding sweetened water during extracting seasons to prevent robbing. We have always recommended, or supposed we did, honey thinned down with water. While probably not very much sugar-sweetened water would get into the extracting-combs again, we think it advisable to avoid any appearance of evil by feeding honey thinned down to the consistency of nectar.—ED.]

J. L. BYER says, p. 5, that for his latitude outdoor wintering is best. I'm in lower latitude, and cellaring seems best here. But that doesn't say Bro. Byer is wrong. I suspect that he doesn't have the hard winds, *long continued*, that we have here. [Is it not possible, doctor, that, if you were to try outdoor wintering again, you might discover that it is more to your advantage to use it than the indoor plan? Mr. R. F. Holtermann says he would not go back to the old way under any circumstances. When we suggested to him that bees wintered outdoors consume more stores he said, "Yes, but they are correspondingly stronger in the spring. As a rule, indoor-wintered colonies do not raise very much brood; while those outdoors will often begin brood-rearing on a small scale in February and March—two months before they would do very much at it in the cellar.—ED.]

Sweet Clover as a Renovator of Poor Soil.

Mr. Frank Coverdale, in his articles on seeding sweet clover, lays emphasis on the need of having the soil fertile. Now, the farmer who has these conditions is all but ready to sow alfalfa, and is much more likely to go on and seed to that plant rather than to something about which he has heard such conflicting reports as with sweet clover.

The great opening for sweet clover, provided it can be made to do the work, is as a renovator of impoverished soils. That in the wild state it grows and flourishes upon the poorest soils is a matter of every-day notice. That there should be any extensive failure to grow it on poor soils would seem to be due to but one cause. That sweet clover and alfalfa have the same nitrifying bacteria is frequently mentioned, and the need of soil inoculation for the latter often urged. That legumes are chiefly benefited by such bacteria on poor soils is also known.

The means by which its seed is transported in the wild state, on wagon-wheels, by streams, and from railroad gravel-pits, are well calculated to secure this inoculation, and doubtless explain its cosmopolitan nature under such conditions. On the contrary, seed harvested from standing plants has little chance of carrying the bacteria; and unless they are supplied they will be liable to failure on soils in which they are necessary to a good growth. Then why not inoculate for sweet clover? If by working in about 200 lbs. per acre of earth from a sweet-clover patch, the soil-enriching powers of this plant can be secured, it certainly ought to pay to take the trouble, and no harm done the bee business either.

McConnellsville, O., Dec. 11.

H. D. TENNENT.

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

Thanks, friend Crane, for that word of good cheer, page 745, Dec. 15. May your prophecy concerning next year be correct. However, while I am not fretting about what we can not help, nevertheless my faith is not very strong for a good crop of honey in 1912. I hope I may be "disappointed."



Much evidence seems to be accumulating as to the efficacy of carbolic acid used in different ways in the handling of bees under various circumstances. The use of this drug for this purpose has been quite common in the British Isles for some time; but so far as I know it has been used but little in Canada. I am looking forward to trying it some time next summer, as I am convinced that it must be a good thing for certain manipulations of the hive.



A correspondent of the *British Bee Journal* asks for the best method of extracting wax from brood-combs, and expresses the idea that the screw presses advocated by many are too expensive to justify him getting one. The editor of that journal advises him to get a "solar," and says that is the best and cheapest way of extracting wax, adding that they will soon repay their cost. Can the editor really mean that a solar is the best arrangement for getting wax out of brood-combs? Why, here in Canada we have much hotter days than they do in England, and the solar that will not leave anywhere from 25 to 50 per cent of the wax in old brood-combs is yet to come under my notice. Last August I happened to be in a large apiary conducted by an old gentleman, and he asked me if we ever tried burning the stuff from the solar wax-press after the wax was *all out*. He said that his women folks liked it when they wanted a particularly hot fire; and when I saw them putting some of this stuff in the stove I didn't wonder it made a good fire. Oh how I ached to get hold of a few tons of that kind of *fuel*! It would not have gone into a stove. A solar is all right for cappings or bits of comb, etc.; but in my opinion it is worse than useless for brood-combs. More than that, since disease is getting so evenly distributed over the country, I now regard that kind of wax-extractor as being a very dangerous arrangement in the hands of many bee-keepers, and for my part I would gladly see solar wax-extractors become a thing of the past.



Bees wintered outdoors had a good flight in most localities in December. Up to date (Jan. 1) we have not had nearly as severe weather as at this season a year ago; in fact, the thermometer has not yet reached the zero-mark, although just now we are threatened with a cold wave. There was much rain and mud in December, and a farmer

was telling me that, with the freezing and thawing, some of his red clover was heaving a bit—an unusual circumstance for this time of the year. However, with colder weather now, there will be no more danger along that line for a while. As for the alskike heaving, there is no need for worry, as there is very little here to heave. Although the weather has been mild, from all reports received so far the bees indoors appear to be wintering well. A few days ago a friend living near where our east apiary is wintering inside of three caves built right on top of limestone rock, wrote me that he had just been in the repositories, and that all were dry and nice, and the bees so quiet that one would not know they were there.

The principle on which these "caves" are constructed appears to me to be sound, and they might be all right in localities where it is not advisable to go deep into the ground. They have given perfect satisfaction for a number of years. Sometime I will illustrate them for the benefit of the readers of GLEANINGS. This winter 280 colonies are in them, and in past seasons as many as 400 have been wintered with good results.



A. C. Miller is a close observer, but I can not agree with his conclusions as to how different methods of clipping the wings of queens will affect their chances for being superseded. For a number of years I have clipped the queens while they were on the combs, and I *try* to get more than half of all the wings off. I can not see a bit of difference so far as their usefulness is concerned, compared with those that have only the tips of one side cut off, or any other particular style of wing-dressing that may be in vogue. Two years ago I reported having a queen that lived to be seven years old—no doubt about the matter at all, as I had proof of my assertion. Well, the man this queen was purchased from had the habit of taking all of the wings off pretty close, and in this particular case he had outdone himself and clipped all her wings off close. She looked very strange, and was always easily seen, even though she was a dark Carniolan. As to her qualities, I need not say much about them, considering that she was alive till seven years of age. She was very strong every year till the fifth, but only moderately so the last two years. Combs full of brood sealed all over—as if all eggs had been laid in a day in that comb—did not look as if she were hampered much by having no wings. But then, who knows but that she might have been better and lived till more than seven years if she had been properly clipped instead of being marked as she was? However, I should like to have a hundred queens like her so far as her good points were concerned, and wouldn't object if they had their wings off either, as I do not think it would hurt them a bit.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Just take this pointer, all you contributors to GLEANINGS, including myself: Tell your little story as simply and naturally as does Miss Lucille Johnson, page 754, Dec. 15.



ABUNDANT SNOWS.

We are having an abundance of snow and cold weather in Colorado at the present time. The snowfall on the ranges has been heavier than for several years, and an abundant supply of irrigation water is practically assured.



AUTOS FOR BEE-KEEPERS.

The automobile is about the liveliest subject among the bee-keepers at the present time. It seemed that, before and after every session of our Colorado State convention, the members would be discussing autos and their use for out-apiary work. Autos that will last for several years for bee-keepers' use are now so moderate in price that it is a question whether a progressive bee-keeper can afford to be without one. They have come to stay, and those most loud in their praise are those who are using them. Several machines will probably be purchased as the result of the informal experiences given at the convention. The machines most generally in use in Colorado are light runabouts or auto wagons, the latter similar to the International auto wagon which will carry one thousand pounds. Motor cycles are quite popular with some bee-keepers for use in getting to their out-apiaries. [See editorial.—Ed.]



Mr. F. Rauchfuss, manager of the Colorado Honey-producers' Association, recently told me a few things about the honey situation in the West, which would do every Western bee-keeper good to know. Extracted honey, over and above that which can be sold in the local markets, has to be sold in the East in competition with Southern and far Western honey. Comb-honey markets have been developed which demand Western honey, and pay a good figure. The Pacific coast has a more favorable freight rate on the shipment of extracted honey than has Colorado and the intermountain region. Comb honey, the past season, brought \$2.75 to \$3.25, while the very best extracted water-white alfalfa honey sells slowly at not over 7 cents in large quantities. Under present conditions there is no doubt whatever that comb-honey production pays far better than extracted honey. In making these statements I am speaking of Colorado and the intermountain regions only. The average bee-keeper finds that he can sell a few cans of honey around home for 10 or 15 cts. per pound, and straightway figures that he can make more money with extracted at this price

than with comb honey at 11½ to 12½ cts., when he has to buy sections, foundation, shipping-cases, etc., and so he goes and changes from comb to extracted honey, soon finding that he can not market his increased product around home, and has to put his nice alfalfa stock on the market in competition with honeys of cracker-factory grade. Extracted-honey producers in Colorado, within the last few years, have had to accept 6 cts. for white alfalfa honey to be used by cracker-factories because they could not find a market for this table honey. At the present time there are five or six carloads of extracted honey in Colorado, and probably not one carload of comb could be found if the whole State were carefully gone over.



BEE-KEEPING EXTENSION.

There are several problems before Western bee-keepers that may not affect those in the East. Here there are many specialists who do not look with favor on bee-inspection. They hope that foul brood will soon clean out the little fellow and leave the field to himself. Is he right? He figures that he can keep foul brood from gaining a foothold in his own apiaries while it is destroying the bees of his less watchful neighbors, and he does not want the inspector to come around and show them how to get rid of the disease. What is the course to pursue for the best interests of the bee-keeping industry as a whole?

A few have spoken to me that were doubtful of the good of having bee-keeping represented on the farmers'-institute courses. They take the stand that it encourages many to take up bee-keeping only to become discouraged later on and lose money by the operation. Then it tends to overstock the field, they claim.

What is the best course to pursue? Stop all bee-inspection and bee-keeping extension, and let the industry go as it has, or try to educate the beginners in the best methods? This subject arouses bitter argument in some places in Colorado and the West.

The whole tendency of the times is toward specialization, and the specialist feels that the ignorant amateur or careless box-hive bee-keeper is a thorn in the flesh. He does not believe such men can be taught; he thinks the only way is for him to become discouraged and sell out to the specialist. There are fewer bee-keepers in Colorado than ten years ago, but more good ones, and there are a goodly number of first-class small bee-keepers. I know some farmers who are really good bee-keepers, and who welcome suggestions and help through farmers' institutes and farm papers, bee-inspection, etc. Let's hear from others on this question.

Conversations with Doolittle

At Borodino, New York

ADVERTISING AS PRODUCERS.

I have been reading the *Rural New-Yorker* for the past year, and I notice that many of the producers of apples, potatoes, beans, etc., put inside the packages a slip of paper, or something of the kind, telling what they received as producers, and requesting the consumer to let them know what he paid for the same. From data received in this way the *Rural* figures that the producer gets only about 35 cents of the consumer's dollar. This seems quite unfair to the producer, and gives a clue to the reason why we bee-keepers receive so small a price for our honey when compared with most of the things we have to buy. Now, while I would not advocate the same plan, I have been wondering why it would not be a good plan to put our names, as producers, on every crate of comb honey we send out, if not on every section, using a pretty stamp therefor. Then by sending out only a gilt-edged article the consumer would soon know of whom he could buy the best honey, and in this way the progressive bee-keeper might build up a most profitable trade, while those who work only in a slipshod way could be shut out from hurting us by selling their product for less than good honey is worth, as is so often done by the careless and indifferent.

This question carries me back more than a quarter of a century, when I was producing much more comb honey than our home market would consume, which obliged me to send quite a share of my crop abroad. I sent some to different counties in this State, and in States adjoining, and reasoned that no buyer should object to the producer's name and address on the packages of honey which he produced, and even went so far as to procure a rubber stamp, and put my name on every section. This was very little trouble if done just before the cover to the crate was nailed on, as the sections were all in rows, so the stamp could be pressed on each almost as soon as it takes to tell it. As I "wielded" this stamp I said to myself, "If the producer or manufacturer of an article has not the right to have his name on it, I don't know who has. How is a honey-producer going to advertise his business and work up a trade for his product unless he places his name on every section of honey he considers a No. 1? It has taken me over fifteen years to learn how to produce a real fancy article of comb honey, and I should be foolish to give this away to some one who happened to buy my honey expecting to sell it again. Those purchasing to sell again have a right to place their name on the *package* as the seller of it, but in no way should they be allowed to mark it or the sections so as to advertise themselves as the producer."

About this time I took a sample of my section honey to a buyer in Syracuse, N. Y., taking a section from each of the different grades which was produced that season, expecting to put my stamp on only that which I considered a fancy article, as I did not consider it good policy to stamp the inferior grades. The buyer looked the samples over, got my prices for each grade, then about the quantity I had, made a few figures, and offered me about \$25.00 more than I expected to get for the whole crop. Of course I sold it to him. I then asked him

how he wanted it put up. He said, "Put as near as you can the proper proportion of all grades in each crate." I objected, and then told him how I had been in the habit of putting my stamp on each section of fancy and No. 1 honey, putting that in crates by itself, while the off grades went without the stamp. He said that he had bought the honey, paid me a good figure for it, and it should be his right to dispose of it as he saw fit, to which I had to agree or be guilty of not living up to my part of the contract. We then talked the matter over, and he agreed that, where I did my own selling to the consumer, I was right in wishing my name on every package, as that would hold me and the consumers together. But with him as a buyer the case was different. He was building up a trade there in Syracuse and in other cities, reaching out into other States, therefore he wished to have his name on every package, and not that of the producer. He then went on and told how he was spending time and money and energy and thought in building up a market for honey in all these cities, and considered that it was only reasonable that he should reap a reward for so doing. He did not advertise that he was the producer of the honey he sold, but tried to impress upon his customers the idea that he was an expert judge of honey, and took great pains to secure that which was of excellent quality. He took great pains to live up to his professions, and always furnished an excellent article, and thus led his customers to believe that, when they bought one, five, ten, or twenty-five crates of honey of him, they could rest assured that it had *his* guarantee that it was all right. He said that, if he should send out honey having upon the sections the names of the different producers of whom he purchased, he would never succeed in building up a demand for the honey he bought, for one day he might be selling honey stamped Doolittle, and the next day that stamped Jones, and so on to the end of the list of producers from whom he bought. When we were through with this talk I saw that there were two sides to this as well as to many other questions, and that, if I produced more honey than I could sell at retail, or direct to the consumer, the buyer of this overplus was entitled to pay for the time he spent in getting it from the producer to the consumer.

He instructed me to put this honey up in crates holding from 100 to 112 pounds, according as the sections were completed by the bees. When delivering the second load, a day or two after the first delivery, I found him sorting the honey I first brought, and putting the different grades into different-sized crates or cases, and sending each to his different customers in the different cities, in accordance with what any particular market called for.

General Correspondence

HIVE PROTECTION.

The Temperature of the Hive Outside the Cluster Nearly the Same as that Outdoors; Thin Hives Covered with Black Paper Better than Expensive Chaff Hives.

BY ARTHUR C. MILLER.

Some years ago I brought to the attention of bee-keepers the value of black water-proofed paper as a winter and spring covering for hives, and explained some of the reasons for its usefulness, and some of the things to be guarded against. Several, evidently thinking that I erred in some of my methods, or overlooking some of the directions, proceeded to use it contrary to some specific and emphatic instructions. They came to grief, and promptly laid it to the black paper. Others thought any water-proof paper would do, and failed to secure expected results in its use. Still others, thinking to improve on all the rest, covered their hives with several layers of papers, and then put a telescope cover snugly over it. All failed to grasp the fundamentals.

Many bee-keepers now have hives either paper-protected or are planning so to protect them in the spring on removing the bees from the cellar, and it may be helpful to repeat at this time some of the essentials, and emphasize some of the important details.

First, a description of conditions within the hive in winter and spring is necessary. In a normal colony of average size, and which has not been unseasonably meddled with, the cluster will be found in early winter down close to the entrance. If such a cluster is opened and examined, it will be found to be nearly spherical in shape, and usually the cells within the sphere contain each a live bee; and between these bee-filled combs other live bees are solidly packed; so, except for the thin waxen cell walls, there is actually a solid living ball of bees. About the outer part of this cluster unsealed honey is found, and beyond that the sealed.

If into that ball, and in the spaces between the combs beside, behind, above, and below the bees thermometers are thrust, some surprising things will be revealed. For this purpose long slender thermometers with long straight bulbs are used. These are passed through holes bored in a super cover, and the cracks about the glass stems are stuffed with cotton. The scales of the thermometers are on white glass backgrounds made a part of them. These scales are selected so that the range of degrees probable will be above the level of the super cover. Over these protruding glass tubes is placed an inverted box or similar cover. This may have glass windows to read the scales through, or the box may be lifted off for the purpose.

As soon as the bees quiet down from the disturbance caused by thrusting the ther-

mometer bulb into their midst, a temperature of 68 to 72° F. will be found. Outside of the cluster, before, behind, or beside, the temperature will be about the same as out of doors. If external temperature has been nearly level for a day or two, the internal temperature will be not over one or two degrees higher. Just above the cluster the temperature will be but a few degrees below that of the cluster center.

These facts are the same whether the hive has walls stuffed with three inches of sawdust or chaff, or are only half an inch thick.

Now, if the thermometer within the cluster is wiggled, the mercury begins to rise; and within five to eight minutes it has risen ten to twelve degrees. Remember this, for it shows the cost of disturbance of the bees in winter. That increased heat is expended energy—bee life plus honey.

If the bees are in thin-walled hives the temperature within the hive (and outside the cluster) will closely follow that outside the hive. In chaff hives, particularly with small entrances, the fluctuation is slower, and this is to the disadvantage of the bee-keeper. If a blizzard has been raging, or strong winds with low temperature have prevailed for several days, and then there follows a still sunny day with a considerably milder temperature, the inside of that "nice warm chaff hive" is not pleasant to contemplate. It is just as cold in there as it was out of doors when the storm was raging, and it stays so for a long time. On the other hand, after an extended period of milder weather the temperature inside reaches the same level; and if a cold spell follows, the inner temperature falls slowly. But winter "mildness" is a long way below cluster temperature.

Bees in the thin hive get *more rapid change of temperature, but no greater extremes*. If the entrance to their hive is sufficiently large, little or no moisture will collect on walls or combs. If the entrance is small, moisture may collect; but the first mild and sunny spell will dissipate much of it. But not so in the thick hive. If moisture collects in it, it stays.

Just as soon as brood-rearing begins, internal conditions undergo a change. Cluster temperature rises; and when the brood occupies part of two or three combs, much more moisture is given off.

The exact temperature change within the cluster after brood-rearing is well under way is as yet a matter on which the several investigators are not agreed. Some note a regular rising and falling of about ten degrees each day, the rise beginning about 10 A.M., reaching its maximum in about an hour or a little more, remaining level until nearly 1 P.M., and then dropping until it reaches minimum at about 2 P.M. This is designated as a feeding fluctuation. Other observers noted the rise of only about 18° F. from the minimum of no brood, so that, in

the presence of brood, the temperature of the cluster stands steadily at about 88° F. And thus matters remain until the cluster "breaks."

When the bees cease to pack into the cells and spread out over the combs (break cluster), conditions within the hive are materially changed. Every thermometer will give nearly the same reading (if the colony is normal); those next to the brood, reading a little above the others. In other words, the bees are keeping the whole chamber warm, and the chaff-packed walls become a very decided help to the bees.

The bees in the unprotected thin-walled hives can not keep the whole brood-chamber warm, so that, from the "breaking of the cluster" until settled warm weather, they are kept much behind colonies in protected hives. But if a single-walled hive is properly covered with a *black* water-proof paper, the results are even better than in the more expensive and more cumbersome chaff hive. Paper to be "properly put on" should be so adjusted that no drafts can enter or leave the hive except at the entrance, which should be left open to a size not less than one by fourteen inches.

Before brood-rearing commences, the temperature within a hive thus protected fluctuates more widely than out of doors, and with this difference: When the sun shines, the black paper absorbs much heat; the hive is warmed through, and the condensed moisture is dispelled. As the season advances and the sun gets higher, the increase of temperature within becomes greater, even up to a point where the bees are incited to considerable activity. If now the entrances are small, the whole chamber becomes so warm that the bees will come down and start out as in summer, only to plunge into a chilling atmosphere without, and perish. But if the entrance is as large as indicated, when the bees reach the bottom of the frames they encounter a stratum of cold air, and, hesitating, start out slowly, if at all.

When the sun passes, the radiation from the paper-protected hive is slow—very much slower than the absorption of heat from the sun. When the cluster finally breaks, the bees can keep this hive as warm as the chaff-protected one. And they have the additional help of the sun's heat which is absorbed by the black paper.

There is a vast difference between a hive painted black and one covered with paper that is black. But where a thin telescope cover is used, and that is covered with black paper, all the advantages of the paper-covered hive are secured with the additional advantage of convenience and permanency. Only two additional items have to be considered with it—namely, having it deep enough to cover the whole hive-body, and having some sort of weather-strip around the bottom edge so air can not blow up under it.

In the spring, after the cluster breaks, it is safe to contract the entrance to suit the owner's fancy; but experience has shown

that no real gain was made by such procedure, if the colonies were of normal size.

Providence, R. I.

[When we received the above article we felt that the importance of the question at stake was such that the other side should be presented at the same time; accordingly we sent a copy of it to Mr. Holtermann and Mr. Byer. Their replies follow.—ED.]

HIVE PROTECTION.

Though the Temperature Outside the Cluster of the Interior of a Thin Hive with a Large Entrance May Vary Little from that Outdoors, does this Prove that Ample Packing is Useless?

BY R. F. HOLTERMANN.

STORES.

Mr. Miller says, "If such [a natural colony of average size] is opened and examined, it will be found to be nearly spherical in shape, and usually the cells within the sphere contain each a live bee, and between these bee-filled combs other live bees are solidly packed; so, except for the thin waxen cell walls, there is actually a solid living ball of bees. About the outer part of this cluster unsealed honey is found, and beyond that the sealed." It is a mighty difficult matter to say what "a normal colony of average size" is; but the description which follows would, in my estimation, picture a colony not well equipped for winter. (It may be insisted that, as I use a large hive (twelve-frame Langstroth), and do not allow my bees to swarm, a description of my bees would not give an average colony. Let me say that there are many bee-keepers who have adopted this system, or are aiming at it with a large measure of success, and many more are convinced of the economy and desirability of such a system, but do not yet know how to make a success of it.) I will guarantee now in early January (for I have had such for years) to take a committee to some of my apiaries in the early spring and show them many colonies that have bees on all of the twelve combs—colonies which ran in weight, without cover, 100 lbs. or even more in the fall of the year. Such colonies we all know must cover a very considerable portion of the capped honey in the fall and early winter. Colonies and their stores should be so arranged that they cover as nearly as possible all of the winter stores in the hive, as stores not covered by the bees during cold and damp weather deteriorate, and so much the more if there is much entrance or other opening to allow of the free circulation of air. It does not take a very good judge of honey to distinguish between honey which has been covered by the bees and that outside of the cluster in the hive during the winter months. The uncovered stores simply absorb moisture and atmospheric impurities, and granulate or deteriorate.

If I have to feed, and have only a limited number of colonies to prepare, I would not feed until close to the time when we *may* have permanent cold weather. I would give a syrup made of $2\frac{1}{2}$ lbs. of granulated sugar to 1 lb. of water brought to a boil; and if I wanted to do what I felt sure would be the best, I would add a teaspoonful of tartaric acid to each gallon of syrup. There is then little need of evaporation by the bees, and they would store the syrup in the midst of the cluster. No better stores can be provided for bees during winter confinement. In my estimation, if a bee-keeper has only an early surplus-honey flow such as clover, his bees are really never in a proper condition for best wintering without feeding; because if they have enough stores in the hive (which, as a rule, is not the case), it is not in the place where the bees can keep it in the best condition.

TEMPERATURE AND ENTRANCE.

Mr. Miller says, further: "Outside of the cluster—before, behind, or beside, the temperature will be about the same as out of doors. If external temperature has been nearly level for a day or two, the internal temperature will be not over one or two degrees higher. Just *above* the cluster the temperature will be but a few degrees *below* that of the cluster center" (italics are mine). This, he states, is 68° to 72° . This, no doubt, will be correct if the bee-keeper follows out his direction as to size of entrance, "which should be left open to a size not less than one by fourteen inches." The object in leaving the large entrance as stated by Mr. Miller is, "If the entrance is small, moisture may collect." Just so; and that is one reason why I do not want the water-proof paper over the hive, for it means that the moisture and foul air must all come out at the entrance, or in part condense on the stores. The fresh air and foul air, by this method come out at a common low-down entrance. In other words, the oxygen to assist the fire to burn, and the smoke and exhaust air, all go in and come out at the damper of the stove. Such a system is not based on scientific principles.

The entrance of the hive can be very small in winter. The entrance to my hive is $1\frac{1}{4}$ inches deep by the full width of the hive, 19 inches. I used to keep, during hot weather, a pair of wedges, $\frac{7}{8}$ in. deep, at the front of the hive, running to nothing an inch from the back, these placed between the sides of the bottom-board and the side of the hive. They were removed when the robbing season set in. I now have them as a permanent fixture the year round, and contract the entrance to suit my needs by a reversible entrance-board to fit lightly between the sides of the portico, $2\frac{1}{2}$ in. deep, and $\frac{1}{4}$ in. wide. Dividing this board by an imaginary line parallel to the bottom-board into two equal parts we have two parts, each $1\frac{1}{4}$ in. wide. The one has on the outer edge an entrance 6 in. long by $\frac{1}{4}$ in. high. The other, outside, an entrance 4 in. long by $\frac{1}{4}$ in. wide, and three holes next to the imaginary line

—one in the center lengthwise, and the other two one at each side about $2\frac{1}{2}$ in. from the center hole. These holes are $\frac{3}{8}$ in. in diameter. During the fall I turn next to the bottom-board the 6-inch entrance. When I pack for winter I turn the 4-inch entrance down. The three $\frac{3}{8}$ -inch holes now come just below the front board of the hive. Before, with the 6-inch entrance, they were closed by the front board of the hive, as they are not in the center of the board. Dead bees can not close these round holes until they accumulate to the depth of one inch on the bottom-board, which does not happen as long as the colony is worth saving.

By putting a piece of lath in the bridge in front of the entrance I can, by reaching with a wire through the three $\frac{3}{8}$ -inch holes in the outer case, close the lower 4-inch entrance quite or almost entirely.

The fresh air in moderate quantities enters the well-protected entrance (the holes in the outer cases are not on a level with the $\frac{3}{8}$ -inch holes in the entrance board or block to check drafts). It ascends about the bees; and as it is being warmed it keeps rising, taking with it moisture and impurities, finally passing out of the hive above. The exit is expedited by a queen-excluder resting on each hive, with a cloth on the queen-excluder. In this matter I have followed the advice of Jas. Armstrong, one of Ontario's efficient inspectors. The air with the contained moisture and impurities passes through the leaves, 8 to 10 inches deep above, and condenses on the cold $\frac{1}{2}$ -inch cover, with roofing-paper outside above, or passes out of the case through ventilators for the purpose.

With such a method no one need tell me that the temperature inside the hive, about the cluster, is, in a more or less short time, the same as that outside. I am quite free to admit that much (almost all) the advantage of packing is lost when a heavy cold wind strikes the entrance of the case. But I have an 8-ft. fence about a small piece of ground, and I feel very strongly that any other method of caring for bees outside is a mistake—sometimes a calamity.

LOSS OF HEAT, THEREFORE VITALITY OF THE BEES, PLUS HONEY.

Mr. Miller himself furnishes an excellent foundation for opposing his conclusions in the statement, "If a blizzard has been raging, or strong winds with a low temperature have prevailed for several days, and then there follows a still sunny day with a considerably milder temperature, the inside of that nice warm chaff hive is not pleasant to contemplate;" and he tells us, "Just *above* the cluster the temperature will be but a few degrees *below* that of the cluster center." *There is the point.* This is clear proof that there is a certain amount of heat given off by the cluster of bees. From Mr. Miller's experiments I find it is even more than I expected it to be. This heat given off by the cluster has an effect upon the hive, and a much greater effect if the entrance to the

hive is small and the bees are *well* protected by packing, but is rapidly lost with an entrance in the winter and spring, 1 in. by 14 inches. The heat passing away more rapidly compels more heat to be generated, which, as Mr. Miller rightly states, "Remember this—that increased heat is expended energy—bee life plus honey." If we have a stove (the cluster) in a room (the hive) it makes a vast difference if we open the window half an inch or take the window out altogether (my winter entrance in contrast to Mr. Miller's).

It seems to me that, however sound the argument may seem to some, an overcoat to keep out the cold is a good thing to keep out the heat, or that no overcoat is a good thing in the morning because the sun can strike us better later in the day to warm us up. As with us, so with the bees—the natural heat of man and bees has to be considered.

SPRING.

In spring, hives protected as mine are, the bees are active in the hive feeding brood, and the queen laying, when in unpacked hives about all they appear to have the energy to do is to turn up their tails slowly, let their stings protrude, and give the well-known accompanying buzz. Perhaps in Mr. Miller's locality the temperature does not range very low nor last for any length of time. The protected entrance also almost entirely prevents robbing, and also keeps the bees from coming out on the least provocation.

Brantford, Ont., Canada.

THE RESULTS OF SOME EXTENDED EXPERIENCE IN CANADA.

Colonies in Thin Hives Wrapped with Paper Died, while Others, Wintered in the Same Yard in Packed Hives, came Through in Good Condition.

BY J. L. BYER.

I have had some considerable experience in the matter of wintering bees outdoors in our severe Ontario climate; and whatever I shall say will, of course, be based on that phase of the subject. And right here let me say that I know nothing of what the climatic conditions of Rhode Island may be, and, for aught I know, Mr. Miller's papered bee-hive may be all right for that State, and countries in a similar latitude. At the same time, I can not understand how it is that what is good for us in a colder climate would not to a lesser degree be good for a milder one, where, even if the thermometer does not go as low as it does here in Ontario, there are nevertheless very sudden changes from cold to warm, and *vice versa*.

As Mr. Miller says, some few years ago he boomed the papered-hive idea in the *American Bee-keeper*. Well, I myself was one who tried to save a few dollars at a time when a silver quarter looked as big as a

"cart-wheel," and as a result I got "stung" in good shape. In glancing at the sub-heads of Mr. Miller's article I notice the phrase, "Thin hives covered with black paper better than expensive chaff hives," and the thought came to me that, if such is the case, a number of bee-keepers who have no money to throw away are making fools of themselves in going to the trouble of giving lots of protection to their bees when a common hive wrapped with a few farthings' worth of paper would answer the bill *better* than all the protection (?) we are giving them. Among the number, the names of McEvoy, Holtermann, Sibbald, and Miller come to my mind, and these four men winter colonies by the hundreds outdoors. Counting in my bees, the five of us winter probably 2000 colonies, so the expenditure in the way of protection, as we now understand the term, amounts to no small sum in the aggregate. Many others might be named, but these names happen to come to my mind as being associated with outdoor wintering quite prominently.

Now, as I have already intimated, I propose to speak on this matter from the standpoint of experience; and in order to get directly at the subject I will at once tell how the plan as advocated by Mr. Miller worked here in Ontario during a winter such as our grandparents designated an "old-fashioned" one. Having a number of colonies in single-walled hives that had to be looked after in some way in order to carry the bees over the winter, friend Miller's plan that appeared in print just at that time was eagerly taken advantage of as a method that would help me out and at the same time solve the question of winter protection when I had no money to buy winter cases. The hives were prepared (about 20) as nearly as possible according to Mr. Miller's direction, with the exception that not quite as large an entrance was given as he specifies in his present article. As a matter of fact, he says an entrance should be not less than one by fourteen inches, and of course this would be impossible in an eight-frame hive. However, I want to be perfectly fair in the matter, and I will admit that the entrances I gave were not as large as they *could* have been in an eight-frame hive. Indeed, an entrance one inch deep, full depth of hive, would allow the hives to be pretty well filled with snow during some of the storms we have sometimes. The hives used were eight-frame; but the frames were somewhat deeper than even the Jumbo size—a circumstance that favors outdoor wintering more or less, as the deeper frames are generally conceded to be somewhat better for wintering than the standard L. frame.

As nearly as I can recall from memory, the entrances were one inch deep, and varied from five to eight inches in width; but I can not for a moment think that a few inches more in size of hive entrance would have made any radical differences in the wintering results.

As already stated, the winter was a very

cold one, so I had abundant facilities for testing the two styles of winter protection as mentioned by Mr. Miller, as in the yard were also about 80 colonies wintered in packed hives. After quite a long spell of cold weather it was found on examination that the sides and ends of the paper-packed hives were coated with frost very heavily, while in the packed hives very little was found on any hives, while many showed none at all. Now, I am well aware that a cluster of bees, to a wonderful degree, can prevent radiation of heat from the cluster, yet *some* heat must leave the cluster, else how could the condensed moisture on the sides and ends of the hives be explained? Then if the packed hives were no warmer than the papered ones, why the absence of frost on the sides and ends, when on the walls of the papered hives the frost was so much in evidence? Mr. Miller says that, if moisture does collect in the hive, the first mild and sunny day will dissipate much of it. On the hives I have under discussion, when a mild day came the moisture would run in streams out of the entrance and would often freeze there toward evening or at a time when the sun would not strike the front of the hive. All winter they gave me trouble, and before the winter was half over I knew that it was all up with the most of them, and the following May only five or six were alive, and they were only weaklings at that. How about the other 80 colonies wintered in packed hives? Writing from memory, the bees wintered in perfect shape with only the loss of three or four colonies from queenlessness, etc. Why the difference in results, if the manner of packing was not the main essential in the transaction? At the time, I said something about my experience, in one of the journals, and Mr. Miller said that he did not recommend the plan for our Ontario climate. In his present article he makes no exception to climatic conditions; and as thousands of colonies are wintered outdoors in our latitude, he probably thinks the plan he recommends will be all right wherever bees are wintered successfully outdoors.

Regarding the temperature of the hives away from the cluster, it seems quite reasonable to believe that the air would be as cold inside as outside in a hive with no protection except paper, and with an entrance 14 inches long and 1 inch deep. That is on a par with opening the door of our living-room during zero weather.

When it comes to protected hives, then I will assume the "show me" attitude till I am convinced. Go to one of the winter cases with four colonies packed close together inside, as described by Mr. Holtermann in a recent article in GLEANINGS. Lift off the packing from the tops of the hives and note all four clusters in a circle around where the four hives meet one another. See the entire absence of frosty walls (provided there is ample protection of dry material between hives and case) and dry condition of the combs; and if you are not convinced

that the air in such hives is warmer than that outside of hives, it will only be when a thermometer under proper conditions has proved otherwise. As to the absence of frost on the walls of the hives, possibly the absorbent material around them accounts for the difference. The main thing I look at is that it is *absent*, while on the papered hives it is always present in very cold weather.

I have tried the black paper for spring protection; and when I say that, besides the bees wintering outdoors, I have 300 colonies inside, and would not thank anybody to paper the whole outfit gratis when they are taken out in the spring, anybody can understand my position on the question without going into detail. My main objection is that the black paper around the hives warms up the hives too much during sunshine and causes undue disturbance, the bees flying out only to perish outside. Mr. Miller covers this point by insisting on large entrances; but as I do not like an entrance in the spring as large as specified by him, the difficulty I mention could not be overcome. Some packing *over* the brood-nest in the spring is, in my estimation, worth more than many sheets of paper around the sides and ends. I have wintered bees in hives prepared as he says, even in our climate, and they sometimes came through fairly strong. But when such was the case, the winters were not as severe as the one during which we lost so heavily.

Another important matter is that every colony wintered with the *minimum* of protection consumed a *maximum* of stores, so in the end any apparent saving in the cost of winter cases was more than made up in increased consumption of stores and weakened vitality of the bees. For seven years in succession I wintered a strong colony in a very large hive, with no protection except packing over the top inside of a super. A hole near the top of the hive would allow me to see the cluster in zero weather, and they wintered well every winter in spite of no protection; but they always consumed about twice as much stores as the protected colonies. While seasoned bee-keepers in climates like ours are not likely to try doing away with protection for their bees, there is danger of some fellow doing as I did some years ago; and all such I would urge to go slow, and test the matter well before risking too much.

Very strong colonies with a very large amount of good stores will winter any old way; but, generally speaking, the apiaries given the best protection during the winter and spring will give the best results in the honey-flow; and I feel pretty sure that, if Mr. Miller were in our locality, and wintering outdoors, he would soon modify his statements as to the relative values of papered hives, and hives in cases with abundance of dry material to protect from the cold winds and take up any moisture that may collect in the hives. If experience proved otherwise, I would be one of the first to quit

spending money for something worse than useless.

Mr. Miller says that "bees in the thin hive get more rapid change of temperature, but no greater extremes." I agree to the first clause of the statement unreservedly, but dispute the second just as strongly. During very cold days in the latter end of January and early in February, whenever the sun would shine brightly for a few hours the bees in the paper-covered hives would be warmed up to such an extent that the clusters would be broken more or less, and the bees become quite uneasy. This condition repeated at various times was a factor that worked havoc to the bees in these *thin hives*, while such short periods of sunshine did not affect the bees in the packed hives, for they wintered in splendid condition.

THEMOMETER READINGS SHOW AVERAGE
DIFFERENCE OF 35° BETWEEN OUTSIDE
AND INSIDE.

Jan. 5 gave signs of a real cold wave visiting us, so a hive was selected for an experiment. The hive is a very large one—12 frames, L. length, and somewhat deeper than the Jumbo style—what some would call a veritable barn. It is a regular packed hive with a double bottom, two inches of sawdust being between the case and hive proper. The outside case is of half-inch stuff. The entrance is $\frac{1}{2} \times 10$ inches, lined inside with paper, and then there is a filling of four inches of dry sawdust between the case and inner hive of inch material. Over the frames is a porous quilt, and on top of that two sacks; without, ten inches deep of sawdust and chaff mixed. Over that is a roof of galvanized iron, and between roof and packing is an air-space of ten or twelve inches. The hive has ten frames and a division-board, which leaves a space of one frame at the side of the hive unoccupied. The division-board was shifted to the outside, and the thermometer suspended between it and the outside comb. The colony is strong, and occupied seven spaces when the weather was at zero, no bees being next to the comb beside the thermometer; but the fringe of the cluster reached to the next space. All that was necessary to do to see the thermometer was to lift off the gable cover quietly, turn back the corner of the sack with the packing, and lift the corner of the quilt. Friday afternoon the temperature had reached zero, and was on the down grade. The thermometer was put in the hive at 4 P.M. The following are the readings for three days in succession.

Saturday, 8 A.M.—Very clear and quiet; 15 below zero outdoors; inside the hive, 34 above. Saturday, 5 P.M.—Zero outside; 40 inside hive; sun had shone brightly all day. Sunday, 8 A.M.—Zero, cloudy all day; inside hive, 35. Sunday, 5 P.M.—1 below zero outside; 36 above, inside. Monday, 8 A.M.—Stormy; cold wind blowing right in the entrance all day; 4 above zero; inside hive, 34 above. Monday, 5 P.M.—16 above, outside, and 36 above in the hive.

Mt. Joy, Ont., Can.

[With a large entrance on one side of the cluster, a single-walled hive, and only one thickness of tarred paper around the hive, we should hardly expect the temperature inside to be very much different from that on the outside. In order to determine the conditions in and outside of a *double-walled packed hive*, with 7 inches of packing on top and $2\frac{1}{2}$ between the walls, we took a number of temperature readings at our home yard. A series of colonies in such hives were selected at random. A thermometer was placed in different parts of the brood-nest, and in one case in particular it was let through a hole in the super-cover, the upper portion sticking up into the packing, so that a reading could be taken without opening the brood-nest. Here are some of the readings we took off where the cover and packing was removed and the thermometer examined before the mercury could possibly change:

Jan. 3, outside, 22 F.; inside temperature of first hive, 60; second hive, same day, 58; third hive, same day, 50; fourth hive, 50; fifth hive, 63. In explanation of these variations we would say that the temperature would have been the same in all the hives within one or two degrees if the thermometer had been placed the same distance from the cluster. In hives 1 and 2 the bulb of the thermometer was placed within two inches of the cluster, and hence the higher reading. On Jan. 5, with a temperature of 7 above, we bored a hole through a super cover, placing the bulb of a tested dairy thermometer clear to the back end of the hive as far away from the cluster as possible. Here are the readings: In the afternoon, about five hours after the thermometer was inserted in the hole, a reading was taken that showed 7 above outside, and 26 inside. Jan. 6, 7 A.M., the outside temperature was 5 below; inside temperature, 20 above. On the same day, at 2:20, the outside temperature was 10 above; inside temperature, 28. Jan. 8, outside temperature 29 above; inside, 28. But on that day the temperature outside rose rapidly from zero in the morning to 29 above. It is, therefore, plain why the inside should have been 28. But right here our experience teaches us that rapid changes of temperature inside of the hive for this locality are detrimental, because they break up the cluster, causing excitement when the bees should be kept quiet. Again, Jan. 8, the outside temperature was 4 above; inside, 28 above. As we are located in a warmer climate than Mr. Byer we do not use as heavy a packing. Perhaps it would be better if we did, for we notice that his inside temperatures are relatively higher. Rhode Island has a milder climate, and much more moisture than most northern localities near the great lakes, and it is no doubt true that it is an advantage to have large entrances; but we can not get away from the conclusion that more packing would save a considerable amount of stores. See further comments on this question in the Editorial department.—ED.]



DR. C.C. MILLER



G.M. DOOLITTLE



WESLEY FOSTER



P. C. CHADWICK



J.L. BYER



L.H. SCHOLL



J.E. CRANE



By request we are reproducing herewith the pictures of our department editors, believing that one likes to see what "manner of men" the regular contributors are. Mr. P. C. Chadwick is our new correspondent from California.

BEE-KEEPING ON THE APPALACHICOLA RIVER, FLORIDA.

Locating Whole Apiaries up on Stilts or Benches, above the High-water Mark.

BY E. R. ROOT.

In our previous issue I told you something about the wonderful possibilities in the way of honey production along the banks of the Appalachicola River, and I promised to take you to some of the apiaries where the hives are located clear up in the air on benches above the high-water mark of the river. Before doing this I wish to introduce to you our host, Mr. A. B. Marchant, whose apiaries we have been visiting, and whose methods for taking honey we have been considering. He is only slightly older than myself, and that means he is still a young man, of course, even if I am within five months of being half a century old. I do not need to say any thing more about Mr. Marchant as a bee-keeper, more than to mention that he has taken as high as 250 barrels of honey in 26 days. A man may know how to spin fine theories. He may be, indeed, a fine bee-keeper; but unless he can make those theories and that expert knowledge pan out into *results*, he is not a successful bee-keeper. Mr. Marchant is not only a bee-keeper, but a honey-producer. 'Nough said.

He invited me to take a trip with him down the river in his gasoline-launch, and, of course, I accepted the invitation. In this Appalachicola region an automobile would be out of the question, mainly because of deep sand and lack of roads; but a gasoline-launch is almost a thing of necessity, for with it a bee-keeper can visit his yards as often as he pleases, and haul his supplies and honey back and forth with the greatest convenience.

We walked down the wharf where we saw those big loads of honey, and stepped aboard



A. B. MARCHANT.

his launch called the *Dixie*, and glided out into the river, the engine going "tuppy, tuppy," as we went. The water is clear and deep, and the fishing superb.

As the little craft goes down the stream toward Appalachicola, beautiful scenery opens up at every turn of the river. Here and there a little stream empties into the big one, and up almost any of them one can find a good place to locate a bee-yard, providing, of course, he has the money, and time to put his apiary up on platforms, six, eight, or ten feet above the ground. As we sat in the bow of the boat Mr. Marchant

pointed out the tupelos along the river. I said:

"Mr. Marchant, why don't we see more bee-yards in this country?"

"Largely," said he, "because there are few places in which to put bees."

The banks of the stream are heavily covered with timber. Occasionally here and there one may no-



Marchant's gasoline launch for going to and from bee-yards and to town.



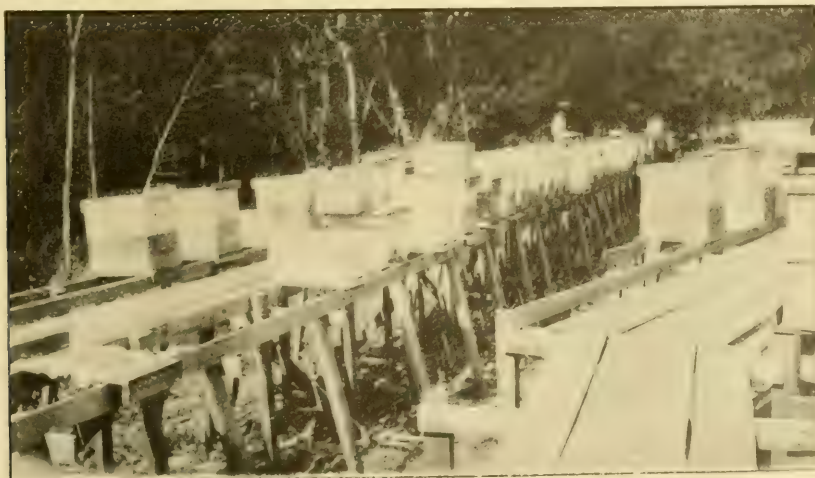
R. L. Tucker's apiary on the Appalachian River, elevated upon platform to avoid high water.

tice a clearing, but the ground is swampy and low, and therefore it becomes necessary for some who do locate here to go to considerable expense in making the elevated platforms, with a runway between the hives. Let us stop at one of these yards.

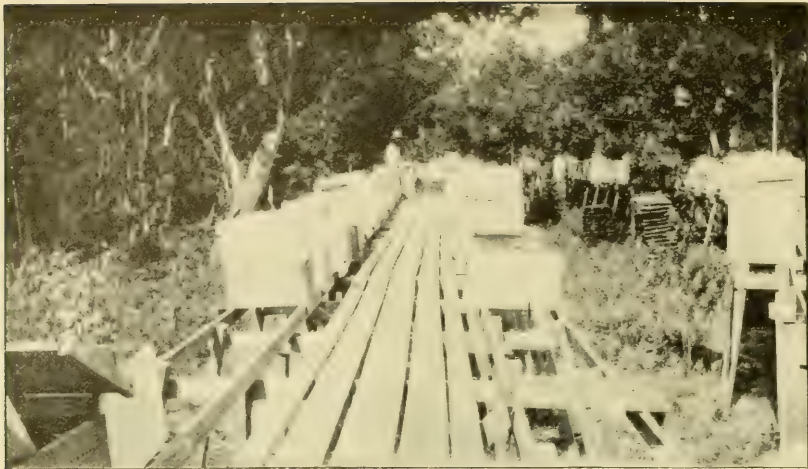
The subjoined illustrations show the apiary of Mr. R. L. Tucker, who has his post-office at Appalachicola. Here we see 360 hives of bees located clear up in the air. The different views will show the details of construction of the platforms and the convenient runways for a wheelbarrow down between the rows of hives. Notice how the platforms are braced, and that the hives are set up on side racks, I should say two feet above the general runway. When the plat-

forms are finally constructed Mr. Tucker has a location for a bee-yard as good as he can ask—no grass, no weeds, no shrubbery—just nice board sidewalks to every hive.

At one end of the "apiary," and also on stilts, is a small building where the owner himself can eat and sleep, put together his supplies, put in foundation, extract his honey, etc. At the time of my visit Mr. Tucker had been sick a few days—whether from malaria or what, I do not know; but, unfortunately, this low marshy land, while it may be ideal for an apiary up on stilts, is, apparently, not an ideal place for the owner to spend several months during the height of the season; and this may explain why there are not more bee-keepers in this coun-



Tucker's apiary, showing the detail of the high benches.



The handy board sidewalks between the hives.

try that furnishes, I might say, shiploads of honey, much of which is now going to waste.

Again we board the launch. As we go "tuppy, tuppy" down the stream we find other bee-keepers located a good deal like those already shown. For example, Mr. B. F. Tucker, at Bluffston, has between 250 and 300 colonies.

As we hasten down toward Appalachicola we make no more stops. But I said to myself, "If it were not for malaria and mosquitoes, this would be the greatest bee-keeper's paradise I ever struck in all the United States, and I have now traveled nearly every foot of territory where bees are known to thrive." I doubt if this country will ever be overstocked.

Our friend Mr. A. B. Marchant, at Marchant's Landing, must be better located than most of the bee-keepers on the river. He is on comparatively high ground, on good land where he can do any thing else he pleases. Unfortunately our friend has suffered severely from two fires, losing his home in both cases, and, unfortunately, his business has increased to such an extent that he finds himself with too many irons in the fire. Besides a sawmill, bee-ranch, and orange-grove, he is also extensively engaged in queen-rearing. As we went down the river out into the Appalachicola Bay he showed me islands off in the distance where queens could be mated to choice drones. He has not worked out the scheme yet, but hopes, before another season rolls by, to furnish island-bred queens mated to choice hand-picked drones. The islands are just far enough from the main land to furnish ideal conditions. If he can possibly get the time he will give us the benefit of his experiments along this line.

I can not drop this Appalachicola district without referring to one or more prominent bee-keepers in that section, whom I was unable to visit at this time. For instance, there is Mr. S. S. Alderman, at Wewahitch-

ka, further up the river. At one time he had as many as 1500 colonies, but now he has only 1000. He does not employ a number of men to work for him, but farms his bees out on shares.

♦ ♦ ♦

THE BEE-STING CURE FOR RHEUMATISM.

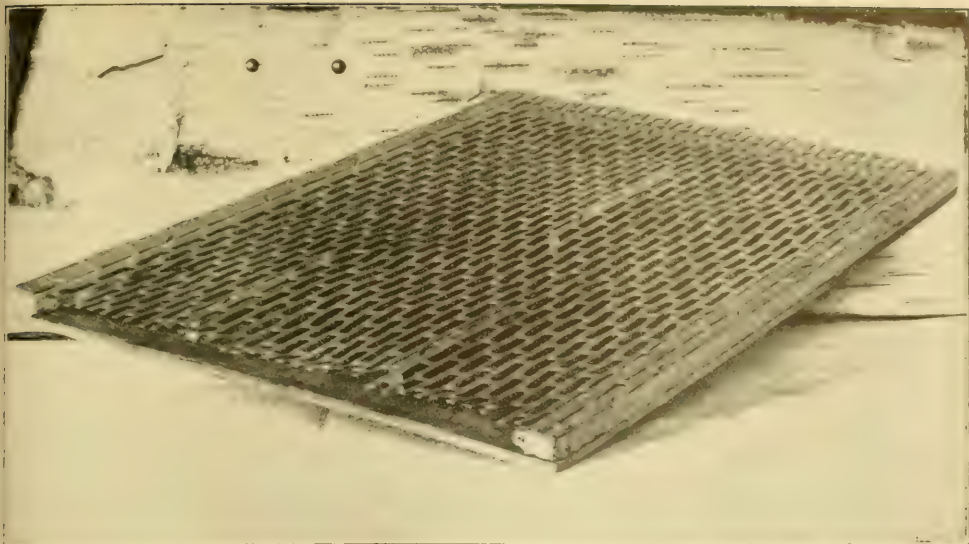
[The following letter was sent to Mr. Fred W. Muth, who, because of the widespread interest shown in the bee-sting cure, sent it on to GLEANINGS together with his reply.—ED.]

I am a sufferer from arthritis (chronic rheumatism) of the joints—some call it rheumatic gout. I have just read the article in *Country Life in America* for December on your application of the bee-sting on Mr. Renner's arm for his rheumatism. I decided, at any rate, to trespass upon your courtesy and ask for your opinion, as you have had experience. We have few bees near by. Is the sting of all species of bees equally efficacious? about how long a time is required to inoculate the system with the formic acid from the bee? I have a long vacation in the summer, and I am wondering if I could have you get your bees to work on me next summer? I would gladly meet any reasonable expense. Please advise. I have little or no rheumatism in the muscles—all in stiffened, swollen joints. Could the sting be applied there? I have tried all known remedies, but nothing is of the least service. I am ready for something heroic, and sincerely trust you will do a sufferer from a terrible disease the courtesy of telling him whether you would be willing later to try your bee cure on him.

G. PRENTICE CARSON.

De Land, Fla., Dec. 8.

[The writer is not a specialist on this subject, and can not advise whether all kinds of rheumatism can be cured by bee-stings. On the other hand, were I a sufferer from rheumatism as you are I would surely try



Forsythe's queen-finding sieve that slides in the entrance of the hive.

stings, for it costs nothing, and the writer believes it will do more good than harm, and harm it can not do, for we have never known a practical bee-man to be afflicted with rheumatism. Some fifty years ago my father was a terrible sufferer from this dread disease, and purchased some bees for the express purpose of curing his rheumatism, and was never troubled afterward. It is the occasional sting while working with the bees that does the work.

Mr. Renner, in question, came to our apary last spring of his own accord, as the last resort. For fifteen years he had been unable to work. Since the cold weather has set in he has not made his appearance, but has called up our office and tells me he has not felt better for many years, and that he is coming back next spring, for he firmly believes he will be entirely relieved.

If you will be the possessor of a few colonies of bees, and do the work among the bees yourself, we feel you will be most handsomely rewarded in your health.

FRED. W. MUTH.

Cincinnati, Ohio, Dec. 11.

QUEEN-FINDING SIEVE TO FIT IN HIVE-ENTRANCE.

BY ROBERT FORSYTH.

I am sending you a photograph of my queen-finding sieve as described on page 666, Nov. 1. I have given it a thorough trial, and do not see how any thing could be more simple or effective. When the sieve is slipped under the frames and the latter are shaken in front of the hive, no opportunity is given the bees to reënter the hive except through the sieve. When all

have entered, pull out the sieve and you are sure to have the queen.

Clairemont, N. H., Oct. 30.

BEE-KEEPING IN ENGLAND.

BY A. H. BOWEN.

Thanks to the influence of "Old Sol," who shone out in cloudless skies from early morn till dewy eve, the year 1911 ranks high in England among the seasons of recent years, for both the quality and the quantity of the crop are excellent. Indeed, had it not been for the stormy period in June and the fierce heat of July, the season would have been a record one; still, the result is satisfactory and most encouraging after two poor years.

With a fairly mild winter, bees came out in good condition, but the early spring proved unfavorable, and was bitterly cold, with the result that many colonies died out through lack of bees and stores.

This condition existed until the end of April, when the weather changed; and from then right on we enjoyed perfect bee days. Fruit-trees rapidly came into blossom, and colonies quickly built up until, at the beginning of June, many were on fourteen combs of brood, and occupying two supers.

All colonies located on the hills where the first flow is from sainfoin, were fed with syrup from about March, right on until the honey-flow. The syrup was given in slow tin feeders, and it was surprising how powerful the colonies became, just in time for the flow, which commenced early in June. A large quantity of unusually light honey was stored and quickly extracted, the wet combs being returned ready for the main clover harvest.



Two-foot log split open, exposing large colony of bees.

Unfortunately, the weather broke up and continued showery and cool until July, when we again enjoyed a glorious period of sunshine, which lasted more or less until the end of August. The fierce heat somewhat scorched up the clover; but a fair quantity was collected from that source, and also from the lime-trees, which yielded well this year. From my own bees I secured an average of 35 lbs. per hive of comb and extracted honey, and also obtained a 25-per-cent increase. The strongest colony yielded 100 lbs. of extracted honey; the next, 85 lbs.; and from the remainder, quantities varying down to 10 sections.

When getting wet combs cleaned up after the last extracting I have found it advantageous to place them *under* the colonies instead of above, as is usually practiced. My method is to remove the colony from its floor-board, and put on two or three supers containing wet combs, then replace the colony on the top. The entrance is contracted to avoid robbing; and when honey has all been carried above, the supers are removed.

In this country bees are usually covered with quilts made of a coarse material such as felt carpet, or even cast-off garments; but I use a wooden quilt of my own manufacture, which answers the purpose admirably; for not only does it afford protection against both cold and damp, but it also provides a perfect winter passage. The excellent way

in which bees winter when covered with this quilt has proved to me its very great value. I should like to convey to your readers some idea of the quiet beauty of the Cotswold, especially in September. Nature is then at her best; the cold bleak hills are clothed with the warmth of golden stubble, and the autumnal haze softens the landscape with those lights and shades which add so much of loveliness to a hill country; and suddenly, as we ramble along, a lovely valley is seen below; old-world farmhouses and ivy-covered cottages come into view, nestling among stately elms and beech-trees. On descending we come into a typical Cotswold village, with its manor house and Norman church, which stands out against the russet-tinted woods in the background. Passing through the village you will come across here and there in the cottage garden half a dozen skeps raised from the ground on logs of wood, and covered with a miscellaneous assortment of crocks, old sacks, tins, or any thing else which can be pressed into service. With the "gentlemen that pays the rint," and the proceeds from the sale of honey, cottagers are able to supplement their somewhat scanty wage.

But the great changes which are sweeping over our land have already invaded even such secluded Cotswold villages as these, and very soon the skep and thatched cottage will be a thing of the past.

Cheltenham, Gloucestershire, Eng.

A LARGE COLONY TAKEN FROM A TWO-FOOT LOG.

BY A. W. AAMODT.

Inclosed you will find a picture. This view of the split bee-log shown herewith was taken during the fore part of October. After some hard work we managed to get this log cut from a bee-tree which was two feet in diameter. We saved the bees and got a good strong colony. We gave them combs containing about 20 lbs. of honey, and, besides that, we got 19 lbs. for home use. The bees were hybrids, but we introduced a pure Italian queen, and by next summer we shall probably have a pure Italian colony.

St. Paul, Minn.

MEETING OF THE NORTHERN CALIFORNIA BEE-KEEPERS' ASSOCIATION.

A Plea for a State-wide Association.

BY W. A. H. GILSTRAP.

The sixth annual convention of the Northern California Bee-keepers' Association was held in Sacramento, Dec. 27 and 28, 1911. It was one of the most important meetings of honey-producers ever held on the coast. A veteran in the pursuit, who was unable to attend, thinks there have been few if any conventions of honey-producers in the United States which has had so beneficial results

as this one will have. To understand the situation, some historical evidence should be introduced.

Over twenty years ago the Southern California Bee-keepers' Association was formed, the projectors trying to interest those further north in the work. The name was soon changed to California State Bee-keepers' Association, and the effort continued to get all honey-producers in the State to combine. The writer knows this is fact.

Not much later the Central California Bee-keepers' Association was formed at Hanford, and possibly still exists. The Tulare County Bee-keepers' Association is about 17 years old; is well organized, and had two delegates present—Mr. Walker, of Tulare, its president, and Mr. Epperson, of Fresno. The Imperial country, in the southeastern part of the State, has an association, which, like the State association, is incorporated.

The writer was honored with the chairmanship of a committee dealing with organization and inspection. The former was reported substantially as follows:

All honey-producers in the State are requested to join the State association, which shall consist of northern, central, Imperial, southern, and any other divisions that may be formed. County clubs are to be formed in each division. For administrative purposes delegates are to be elected to each division from the county clubs, and to the State association from each division.

No law can be passed on inspection till next winter, and the committee's plan contemplated the above organization by that time. The main features of the plan are somewhat similar to the above in formation. The Governor of the State shall appoint a State board of apianian examiners whose members shall not exceed the division of the State association in number, from a list of names to be submitted by the State association, and the Governor shall remove the same for cause. The board shall appoint a State inspector and county inspectors, and shall be paid actual expenses and per-diem salary by the State. The State inspector shall have laboratory facilities with the University of California or elsewhere; shall give necessary assistance to county inspectors, and shall cause necessary inspection to be done by competent persons in counties where there are no inspectors, at expense of counties where inspection is done. County inspectors shall appoint deputies when necessary; may remove them, and shall be responsible for their acts. All the above shall be under bonds, excepting the deputies. County inspectors and deputies are to be paid by the county.

While the above is from memory, it is close to the report submitted, which was turned over to the executive committee. After due amendment we hope it will be endorsed by all the associations in California.

The delegates from the State association, Sec. A. B. Shafner, Los Angeles, and Inspector J. W. Ferree, of Surrey, as well as the Tulare association delegates, were of

much assistance, and worked untiringly for the general good.

The first day, State Entomologist Prof. C. W. Woodworth was up from Berkeley, and was frequently called on for advice. He said we should confer with the various societies of our industry for a law, take plenty of time to get it right, and then he would work for its passage. He has conducted a class in apiculture at the University for 17 years.

The last day, Dr. A. J. Cook, State Horticultural Commissioner, was with us for a while. To bee-keepers he will ever be "Prof. A. J. Cook." He spoke with much feeling of the older bee-keepers who have largely passed away, and assured us of the friendship of the bee-keepers at the south end of the State. He told us how Governor Johnson had lately called a special session of the legislature to manage an insect not as large as a house-fly. Twenty minutes after the legislature convened the desired measure became a law, and the legislature adjourned! He told us to prepare a good law and he would help us get it through. We enjoyed his talk immensely, even if he did "josh" us freely.

Our friends from the south told us that the State association reports its meetings to the papers, as it wants it done by a censor, and not as a reporter who knows nothing of our pursuit would do it. During the meeting the need of such a plan was glaringly apparent, and all bee-keepers' associations could well consider this point.

Mr. W. Gear, of Vorden, was elected secretary for the following year.

Ceres, Cal.

MOVING OVER 1000 MILES, AND SECURING 160 POUNDS PER COLONY.

BY B. F. SMITH, JR.

April 26 I received notice I was to be transferred from the Omaha to the Sheridan division of the C. B. & Q. R. R. The year 1910 was nearly a failure in our locality in Nebraska; but having fed my 23 colonies until each had 25 or more pounds of stores for outdoor wintering, I expected to find them in good shape for the trip. I found two dead and one with just a little bunch of bees with a drone-layer. This left just 20 with two doubtful ones, which I did not have time to examine.

About 2 P.M., with thermometer at 55, the covers were removed and wire cloth nailed on instead, thus leaving just a 3/8-inch space over frames. About 5 P.M. it was a little colder, and screens were tacked over the entrances, and the work of loading commenced. All household goods were loaded in one end of a 40-foot box car, and a rack or gallery built in the opposite end, upon which the covers, supers, and chaff-trays were loaded.

I had just enough one-inch boards to cover the bottom of the car in the end I intended for the bees, and on top of these I put

about a foot of straw, carefully smoothing out the bumps. The hives were loaded in four rows of five each, and held in place by 1x4 strips nailed to the sides of each hive with a straw bumper between end hives and car. The hive entrances were all toward the car door with about 3 feet between the top of the hives and the rack above. The rows extended nearly to the door; and between the doors I had five crates of chickens, a cot, chair, gasoline-stove, and water-barrel. As the last piece was loaded, the engine backed on to the car, and the start was made.

We had not reached the first station before I discovered that one pair of wheels on that car were not true, and at a certain speed every thing in the car danced in a fashion that made me sick. As it was on the opposite end from the bees I tried to hope it would be all right with them. About half the first night was spent in bracing the chicken-coops and putting packing in where I could to prevent chafing.

The trainmen on my old division handled my car in fine shape; but as soon as I was among strangers the way that car was hit, bumped, and jammed made me wish that some of those switchmen and engineers would have to ride over one division in a car like that.

There were eight divisions, and that meant eight switchings; and although the car was loaded by an expert loader, it had to be rebraced several times. The hives, however, did not move on their bed of straw.

Saturday morning we arrived at our destination in the Big Horn Basin, Wyoming, in the midst of a snow storm, and the bees remained in the car until Monday, making the total time just one week. I found the two doubtful colonies and the one weak one dead. The two had been queenless before loading, so that there were none but old bees. The smaller colony suffered because the frames slipped over. Some were Hoffman frames and some loose hanging; but only one of these moved. All the bees had been sprinkled four times daily except the two last days. Temperature ranged 50 to 75°.

The late storm destroyed all the fruit-bloom, and I commenced feeding May 15. On June 14 sweet clover started to yield; then alfalfa and wild licorice. The flow did not let up until frost, Sept. 20. All colonies were tiered up as high as I could lift the supers before any were removed. Three colonies were divided, but I had no swarms. In all, there was a crop of 3050 pounds of water-white extracted honey and 150 pounds of comb; and I had 20 colonies ready for winter.

During July I found a swarm in a rabbit-hole. It had evidently swarmed, as there was just a little sealed brood with several vacant queen-cells and a virgin queen. This colony I transferred to a hive, and it built up to six frames without assistance.

Cawley, Wyo.

[The usual plan is to locate the hives in the car so that the frames are parallel with

the rails, so that, when switching is going on, and the car is constantly being bumped, there is not so much danger of breakage. Your record, however, was very good.—ED.]

FENCES VERSUS SOLID SEPARATORS.

Narrow Versus Wide Cleats.

BY F. GREINER.

It is still vivid in my mind what trouble I experienced with the comb-honey supers which I used during the first few years of my bee-keeping in 1875 and thereafter; but I found something after a while that worked so well that even now I do not see the need of seeking for any thing better; and had I not been led to using no-beeway sections, which made it necessary to use either fences or cleated separators, I would have nothing more to say on that subject. When the no-beeway section was first brought out by Mr. Morton, a discussion arose as to how wide the vertical cleats should be, and it seems that one-fourth inch has been settled on, although at one time it appeared that three-fourths inch, or at least something much wider than the present regular width of one-fourth, would gain in favor; but of late, and for some years, our comb-honey producers have said nothing on the subject, which seems to be accepted as evidence that these narrow-cleated fences give the best of results and are satisfactory.

Now, it happened that, at the time I wanted to make my plain-section supers, fences could not be bought; none were offered for sale; and as the evidence seemed to be in favor of a wider cleat I made up my cleated separators with cleats three-fourths inch wide. Wishing to test fences also, I made up 25 sets of fences with narrow cleats one-fourth inch wide, as are commonly used now, except that the separator material was one-eighth inch thick instead of one-sixteenth, as the larger part of the fences in use are made. It also happened that, soon after this, I bought some 20 or 25 supers with fences of the narrow-cleat type. These supers of different styles have been in use ever since, which is quite a term of years, and now I desire to give my experience along this line.

I want to add that, a year ago, I wanted to increase my stock of supers; and, not wishing to spend much time in making up fences, which is a very laborious task when one has not machinery to do it with, I bought 500 Danzenbaker fences. All of these were used last season with the others. Now as to the result:

The smoothest honey has always been produced with the solid wood separator, whether cleated or not; i. e., whether it came out beeway or no beeway section-supers. There was always the least of what friend G. M. Doolittle called "mangled" honey with these solid separators.

The separators (or, rather, the fences of the 25 supers which were bought during the earlier time) were very flimsy; they were

only $\frac{1}{8}$ inch thick, and of very soft timber. My bees showed very little respect for them, and gnawed them in a frightful manner. They have long been out of commission, and the supers have been entirely remodelled to correspond with my regular stock. The resulting honey had always the washboard appearance, and many legs were attached to the faces and fences. There was another peculiarity of these supers; the combs in them ran crosswise of the frames in the brood-chambers, making it necessary to keep hives perfectly level both ways. This is, as every one knows, a very undesirable feature, and can not be tolerated except in house-aparies or tenement hives.

The honey produced with the Danzenbaker fences also lacked in smoothness when compared with that produced with solid separators. But the feature I wanted to draw especial attention to as being the result of the narrowness of the cleats is this: The sealing of the cells next to the wood is quite often so drawn out as to be slightly attached to the cleats; and when the filled sections are removed from the supers this sealing is somewhat broken, and a leak is the result. This may not be very serious, for bee-keepers seem to be passing it by without making objections, although few have mentioned the matter. A wider cleat entirely prevents this trouble, as is clearly shown by the honey produced in my 100 or more supers provided with such wide cleats. The fences with the narrow $\frac{1}{4}$ -inch cleats, which I made some fifteen or more years ago, have always given us the same trouble, more or less, just as the Danzenbaker fences did, but have stood the wear exceptionally well—probably because the material was good sound timber, and of good thickness. I doubt whether the thin Danzenbaker fences will endure like that. My suggestion would be to make thin separators or fences of hard wood—maple, elm, or something of that nature.

Before I forget it I want to say that we can get along with the "legs," or little attachments the bees are apt to build between the fences and the combs, much better than we can with the other nuisance mentioned, of having the sealings attached to the cleats. The legs are easily detached by running an eight-inch hack-saw blade through the beespaces where the attachments appear. Before unloading filled supers we stand them up on the bench so that the light will shine into the spaces; thus we readily see where there are any attachments. This past season we had some supers which looked very discouraging to us on account of the many legs. At first I thought I would not find a single suitable section in a whole case for shipment; but after sawing off the legs there was not a spoiled section to be found; while, had we omitted this, not a section in some of the worst cases would have been fit to ship. But we have no remedy to prevent mutilation when the sealings are attached to the cleats.

Naples, N. Y.

FOUNDATION SPLINTS.

How Made and How Used.

BY DR. C. C. MILLER.

M. C. Thompson, Milwaukee, Oregon, inquires about foundation splints. They are made by sawing and also by slicing. First the wood is cut into sheets $\frac{1}{8}$ of an inch in thickness. Then a number of sheets are laid together and cut into splints, making the splints $\frac{1}{8}$ of an inch square. A saw for the purpose must, of course, be very fine, and the slicing-machine is a large and powerful affair that I suppose is quite expensive. I have never made any splints, as I can buy them for 60 cents per thousand with an additional 10 cents for postage if sent by mail. I couldn't make them nor have them made locally for any such price. They would work all right if made long enough to reach from top to bottom-bar, but would be troublesome to put in, so they are made $\frac{1}{4}$ inch shorter than that. For a frame of Langstroth size, with top-bar $\frac{3}{8}$ thick and bottom-bar $\frac{1}{4}$ thick, that makes the splint $7\frac{1}{4}$ inches long.

Broomcorn might work for splints, only it would take a good deal of care in selecting, and at that would not be of such uniform thickness as the spliced splints. I hardly think you would make satisfactory work splitting wood into splints, even if your cedar and fir are very straight-grained. But you can easily try it.

Now the manner of putting in the splints. The foundation is fastened to top and bottom bars; then the frame is laid over a board such as is commonly in use, being made to fit rather loosely inside the frame with stops on the edges to allow the foundation to rest on the board. The splints are thrown into a square shallow tin pan that contains hot beeswax. They will froth up because of the moisture frying out of them. When the frothing ceases, and the splints are saturated with wax, then they are ready for use. With a pair of plyers a splint is lifted out of the wax (kept just hot enough over a stove), and placed upon the foundation so that the splint shall be perpendicular when the frame is hung in the hive. As fast as a splint is laid in place, an assistant immediately presses it down into the foundation with the wetted edge of a thin board.

I have used different makes of brood-foundation with splints, and of different weights—heavy, medium, and light. About $1\frac{1}{2}$ inches from each end-bar is placed a splint, and between these three other splints at equal distances, making five splints in the frame. This for heavy or medium foundation. For light foundation I have used seven splints to the frame.

I see no reason why the plan given by Mr. Atwater, in April *Review*, should not work all right.

If splints are given when the bees are not busy gathering nectar and building comb, they will be gnawed out. The thinner the foundation the more likely the gnawing.

Heads of Grain from Different Fields

How Often is it Necessary to Inspect Colonies for Foul Brood?

Dr. C. C. Miller:—How often would you recommend examining hives for foul brood, and at what season of the year? In April or May I examined a colony that acted strangely, and found about one-fifth of the unsealed brood dead and black. In three weeks all cells were cleaned out, and being filled with eggs and larvæ; but about a third of the worker-cells hatched out all drones. No more disease appeared. I pronounced it pickled brood. These bees were dark hybrids.

In August I killed the queen, which was a fine-looking one, and introduced a golden Italian one in her place. Soon beautiful bees began to hatch; but within ten days from the time they began to fly out, there would be from four to seven dead ones on the alighting-board. But there were no old nor hybrid bees among the dead ones. The unhatched brood was healthy. Why did the young bees that had never done field work die off? At present all seems to be well.

Gewda Springs, Kan., Dec. 9. D. W. HOLLAND.

[Dr. Miller replies:—]

Of course there's no use looking any time before brood is present in spring, nor, indeed, for some time after. Wait till colonies have built up into prosperous condition and are bringing in honey. From that time until brood-rearing ceases in the fall it will be well to make an inspection every two or three weeks if foul brood is in the apiary, either for treatment or to make sure that no treatment is needed.

You are likely right in attributing that 20 per cent of dead brood to the pickled-brood business, if we may call starved or chilled brood pickled brood. But the drones from worker-cells should be charged to a defective queen. The dead young Italians may likely be charged to the larvæ of the moth. These run their galleries along the surface of the sealed brood, mutilating the young bees, which are then thrown out.

C. C. MILLER.

When is the Best Time to Remove Old Crooked Combs?

Are Jumbo frames self-spacing?

What is the best way to remove old useless brood-comb from the hive so that there shall be as little waste as possible of honey, brood, and pollen?

I have no honey-extractor. Some of my colonies have contracted foul brood, and I find that it is those colonies that have old brood-combs.

Bainham, N. Z.

E. B. LANGFORD.

[The Jumbo frames are usually self-spacing of the Hoffman type.

If colonies require feeding in the fall, old crooked combs can be gotten rid of very easily at such a time by removing them before the feeding is done, and then contracting the size of the brood-chamber to accommodate the combs left which contain the winter stores.

Early in the spring a great many poor combs can be taken away; and a little later, when the bees begin to need more room, frames of foundation can be substituted.

During swarming time the old combs may be removed entirely, and the bees shaken on to full sheets of comb foundation. The old brood-combs are then stacked up, the young bees allowed to hatch, and then, after three weeks, these young bees shaken in front of various colonies in the yard that may need strengthening. The old combs are then empty and may be rendered up.—ED.]

Capping-melters Darken Amber Honeys.

I am one of the oldest bee-keepers in Australia, and for a long time the largest, although I do not think I am at present. I have had a bottling establishment in Sydney for a number of years; and as it was always necessary to use heat I had considerable experience of the effect of heat on different honeys. There are some honeys gathered in Australia of good consistency and flavor, and very light color, which a capping-melter would not injure much; but the majority of darker honeys it would damage to a great extent. There are some honeys here that will not stand heat at all; and if they candy it is better to let them go in that state than to attempt to liquefy them, as they get so

dark and rank. For that reason a capping-heater would be of no use to me, nor, I think, to the majority of Australian bee-keepers. If I used one I would certainly keep the honey apart and sell it on its merits. I would not allow it to run into the tank.

Mr. Beuhne is, I think, peculiarly situated, inasmuch as he has a location which gives him a very large field of light honey—the sort which receives the minimum amount of damage by the application of heat. Both here and on my other farms, 400 miles south, I get some honey which I could safely put through a capping-heater, but I get a lot which I could not.

Cappings are undoubtedly a nuisance—that is to say, the accumulations during extracting are; and the only merit a heater has, in my opinion, is to get them out of the way quickly; but if this is done at the expense of the quality of the honey the advantage is a doubtful one. I will tell you later on, if you care to know, how we manage with our cappings.

MAJOR SHALLARD.

South Woodburn, N. S. W., Australia.

[We are very glad to use what you have to say regarding capping-melters; and we should be pleased to have you continue the subject, and tell how you dispose of cappings.—ED.]

A Swarm that Issued when the Queens were Ready to Hatch.

One Sunday morning in July we noticed that a swarm had just gone out of one of our hives previous to our visit; and in order to make sure from which hive the swarm came we opened the one which, the previous day, seemed about to swarm. This happened to be the right hive; and on examining the frames we saw two or three queen-cells on which the caps were so loose from the young queens trying to free themselves that we had no trouble in removing the caps with our fingers and releasing the young queens, which immediately ran out on the frames. That was the first time in our experience that we had so good an opportunity to test this much-mooted question. We think this bears out your experience also, that the young queens hatch at or about the time the old queen goes out with the swarm.

Clamart, France, Nov. 21.

GEO. STEPHENS.

[There has been plenty of proof to show that the swarm occasionally issues about the time the cells hatch; but it seems likely that, in the majority of cases, it comes out about a week in advance. Unfavorable weather conditions probably account for the occasional delays.—ED.]

Will Honey Transmit European Foul Brood?

I wish to know if European foul brood might be transferred from place to place in the honey. I understand that it is fully admitted that the American type is. Will honey extracted from an apiary containing European foul brood, and shipped to another State, and fed to bees, bring on disease?

Kerman, Cal., Dec. 13.

CHAS. A. LEE.

[This letter was referred to Dr. E. F. Phillips, who replies:—]

The question raised is, of course, important; but I know of no way to answer it definitely. The cause of European foul brood is not known, and therefore we would not know what to look for in the honey. Furthermore, even for American foul brood (which we know is carried in honey) it is difficult to find the organisms. Some practical experiences would certainly indicate that European foul brood is carried in honey; but, on the other hand, the success which is sometimes experienced with the dequeening method of treatment makes this somewhat questionable. Every phase of this disease is a puzzle, and one who can speak definitely of it usually does not know. E. F. PHILLIPS.

In Charge of Apiculture.

Bees Returned to Old Location when Set out for a Midwinter Flight.

The mercury rose to 66 degrees, so I ventured to set my bees out for a flight, and they flew freely all day. I set them on the opposite side of the house, and some of the bees hung around the old stands, but returned all right. That shows their memory.

Derby, Vt., Dec. 12.

W. H. WILSON.

Italians are Gentler and Produce More Honey, but they Also Swarm Worse.

For some years I have had a yard of black bees about three miles from home, while at home I have only Italians; and I have endeavored in every way to arrive at the truth in the matter as to which is really the better under all ordinary conditions. At first I thought the Italians were the better; then one season caused me to change my opinion, and I have now come to the conclusion that I prefer Italians; but I think there is really but a very little difference as to the amount of honey gathered by each race. While the Italians have proven to be a little ahead in the amount of honey gathered, they have overbalanced this by being worse to swarm, especially early in the spring, before there is any honey of notice to gather.

Another difference that I have never seen mentioned is that the blacks are not nearly as apt to use up their stores by rearing brood early and late in the season. I have rarely found a black colony starving in the winter or spring, while this is almost the rule with Italians here, as they nearly always require more or less feeding, either in the fall or spring.

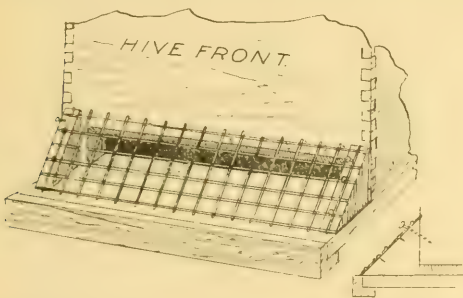
On the score of gentleness the Italians are far ahead of the blacks, as the latter will sting much worse, and are so nervous that they will fall from the combs to the ground, where they will scramble about and crawl under one's clothes if possible. I am pretty sure that the Italians slightly excel as honey-gatherers, and very much so as to gentleness and ease with which they may be handled. Taking every thing into consideration I now prefer Italians; but it is a great deal more trouble to keep them pure, as there are always some blacks in the neighborhood, either in trees in the woods or in hives. I find that this is to some extent the case in most of the country, as a great many queen-breeders send out queens that produce hybrids which are as cross as cross can be. I have had hives of hybrids that were so cross that an inexperienced person would have been in danger if he had tried to handle them.

Stonecoal, W. Va., Dec. 1.

W. C. MOLLETT.

Mouse-proof Entrance.

During cold weather there is often great damage done by field mice where the hives are left on the summer stands and the entrances left unprotected; but if a wire mouse-screen, like the sample I am sending you, is used, there will be no trouble at all



from mice, and the bees can pass out and in freely when the weather is warm enough for them to fly. I first bevel the entrance as shown, and I find that the bees pass in and out with much greater facility than with the ordinary entrance.

Wilkesburg, Pa.

W. D. KEYES.

Bees Uneasy Because of Low Temperature in the Cellar.

Why are my bees restless in the cellar with the temperature down to 32°, and the air good? They keep up a constant buzzing, and a few come out and die.

Glenwood City, Wis., Jan. 12.

J. E. COOK.

[The trouble with your bees is undoubtedly because the temperature of the cellar is too low. It should seldom go below 45° F.; and when it goes below 40 the bees are apt to roar or show that they

are uneasy. Dr. C. C. Miller, in one of his articles some time ago, described how he quieted his bees by raising the temperature.]

This roaring may be caused by bad air, even though the temperature be right; or it may be caused by too low a temperature, even in good air. It may be advisable for you to put artificial heat in your cellar. The best way, of course, is to put a small drum stove, burning hard coal, or something that will give a steady heat, down in the cellar, connecting the same to a chimney reaching down through the floor. Of course, if you can not apply this kind of stove you might use a large coal-oil lamp; but this makes the air of the cellar very foul. When the temperature of the cellar is as low as 32°, and you have no means of raising it, your bees will be almost sure to die before spring.—ED.]

Association of Apiary Inspectors of the United States and Canada.

On Dec. 30, 1911, in Washington, D. C., there was formed a temporary organization of the above name with a view to increasing the efficiency of apiary inspection and to bring about a greater uniformity in the laws, and more active coöperation between the various inspectors.

A committee on permanent organization was formed, to report at a meeting to be held in Cleveland, O., in December, 1912, in connection with the meeting of the Association of Economic Entomologists. Prof. Wilmon Newell, College Station, Texas, is chairman of this committee.

A standing committee was also appointed on legislation for the purpose of drawing up a law incorporating the necessary and desirable features. The undersigned was appointed chairman of this committee.

All apiary inspectors and official entomologists of the United States and Canada who are interested in the advancement of apiculture are invited and urged to join in this movement for an increased efficiency in the fight against brood diseases. For the present it was decided to levy an assessment of \$1.00 per year on each member to defray necessary expenses. It is hoped that arrangements may later be perfected for affiliation with the Association of Economic Entomologists. Requests for membership and the assessment may be sent to the undersigned.

E. F. PHILLIPS,

Bureau of Entomology, Washington, D. C.,
Secretary.

DR. BURTON N. GATES, Amherst, Mass.,
Chairman.

Cellar Wintering Best when Bees can Not Fly for Over Five Months.

On page 741, Dec. 15, I note your statement, "It takes much less skill and time to winter bees outdoors," and "The average beginner will succeed better by it." I would take exception to both of those statements, especially for a man who lives as far north as I do, and in as cold a climate. Last winter my bees were without a flight for 5 months and 17 days; nor was there one day when they could have had a flight even if they had been outdoors. I lost 6 colonies out of 86.

Last year my bees had their last flight October 18, and there has not been a day since when they could have flown. I put them in the cellar Nov. 3.

We had one night in November when the mercury was 28 below zero. There have been several nights when the temperature has been to zero. The night of Jan. 1 the temperature was 35° below zero; Jan. 2, 26 below; to-night, Jan. 3, it is 24 below; and at no time in the last three days has it been warmer than 14 below zero. I think I had better stick to cellar wintering.

Robbins, Wis.

G. C. CHASE.

Clipping does Not Impair the Usefulness of a Queen.

Clipping queens, in my experience of over twenty-five years, does not usually in any way impair their usefulness or shorten their lives—at least they often live three or four years after being clipped—p. 523, Sept. 1. I usually cut square across all the wings, taking off about half of each.

If you want to kill bumble-bees or yellow-jackets, put some gasoline in a spring-bottom oil-can and squirt it into the nests. Do it before you stir them up. Bumble-bees can be handled by using smoke.

Payson, Ill., Dec. 29.

DANIEL E. ROBBINS.

Watering Bees in a Cellar.

I noticed in March, last year, my bees began to raise brood, in consequence of which they became very restless, after which I gave each colony a little saucer of water, which seemed to satisfy them. Is this the right thing to do?

Omaha, Neb., Jan. 5.

H. C. COOK.

[Water has been given the bees while in the cellar by some bee-keepers, and in a few cases it has seemed to quiet them. Whether it is because they needed the water for brood-rearing or what, we can not say. A good deal will depend upon local conditions. If water does encourage bees to rear brood, we would say that we would question the advisability of giving it to them in the cellar, because brood-rearing too early in the spring would be a disadvantage. The bees would be uneasy, rouse up, and make the colony too warm, and render it difficult to control the conditions properly.—ED.]

A Diagonal Line of Drone-cells.

A colony of bees superseded its queen in July. Several of the virgins being of good stock they were secured. They started laying Aug. 17. Two, that proved to be purely mated, were saved. These queens are somewhat slender in body, but apparently prolific. The brood is compact and regular, with the exception that drone brood is placed in worker-cells running in almost perfect lines of single cells diagonally across the comb. Some drone comb in the supers, to which these queens had access, was neglected. About the time the drones reared in the worker-cells matured they were cast out. During August and September two successive lots of drones were reared that way. Each lot consisted of about 100 such drones. I am a beginner; and, with the exception of some little drone brood appearing in worker-cells in the early spring, I have not experienced this condition. What do you think of these queens?

Philadelphia, Pa., Jan. 13.

E. ROHNER.

[Perhaps these particular combs that contained drone brood had sagged so that a line of cells was stretched large enough so the queen laid drone eggs in them. It is hard to conceive of only one line of cells being stretched in this way; but this is the only explanation we can think of. If these combs are wired diagonally this might have something to do with the matter. You had better watch those queens next season.—ED.]

Greasy Waste Dangerous.

I note what you have to say concerning the footnote to my comments on cotton as smoker fuel, p. 664, Nov. 1. Greasy waste is nasty to handle. Reload the smoker and then handle some snowy sections of honey. It is dangerous to leave about. Its tendency to spontaneous combustion is great, particularly when it contains certain oils and greases, and the smoke from it stinks. There are plenty of better things. Plain cotton, in waste rags, or yarn, always makes trouble for me when used as smoker fuel. Mr. Latham is very emphatic in its condemnation. Repeated use of tobacco, say on several consecutive days, often causes trouble.

Providence, R. I.

ARTHUR C. MILLER.

[If a little care is used as to the place where the waste is kept, there is no danger of a fire. The great advantage of this fuel over any other that we have tried is that it lights at the touch of a match, does not make a hot fire, and never goes out until it is all used up.—ED.]

Meeting of the Ventura County Club.

At a meeting of the Ventura County Bee-keepers' Club, held at Fillmore, Cal., January 6, 1912, it was unanimously voted to join in a body the California State Bee-keepers' Association. Inspector Allen was upheld in the matter of quarantining all bees and queens from outside the county, on account of brood diseases. All queens and bees shipped into Ventura Co. must bear an inspector's certificate or they will be destroyed when they arrive.

Santa Paula, Cal.

E. F. McDONALD, Sec.

"Grandma" Wilson a Honey Salesman.

I wonder whether Dr. Miller realized what a fine salesman he had when he started that fine old lady on the road, page 659, Nov. 1. I have no means of knowing just how much she has benefited other bee-keepers, but I know she has sold quite a few

pounds of honey for me. If bee-keepers did but know it, right here is the secret of successful advertising. Let those with large healthy families or healthy old folks who consume honey regularly have photos taken, and have them published in their local papers, and they will often be copied widely. These articles are always interesting. I clipped the inclosed from the *Philadelphia Record*, East Stroudsburg, Pa. GEORGE H. BEDFORD.

[The clipping sent was a copy of the article as it appeared in GLEANINGS, picture and all. Yes, such items do good.—ED.]

Camphor in the Carbolic-cloth Solution.

Carbolic cloths can not be surpassed by any kind of smoker. I have handled blacks and hybrids, of very vicious temper, with the greatest of ease, and under many adverse conditions, as well as Italians. I procure a 4-oz. medicine-bottle and get 1 oz. of pure carbolic acid, also 2 oz. of camphor. Get a pestle and mortar and break the camphor up fine, then pour on the carbolic; and after it has dissolved the camphor, bottle for use. The reason I mention a 4-oz. bottle is that I have always found it handy in my pocket when out.

Toronto, Ont.

R. V. KEYHOLE.

How Many Kinds of Italian Bees are there?

What kind of Italian bee is the best? How far would it do to ship colonies of bees? I should like to buy some this spring. A. T. DANIELSON.

[There are but two main divisions or kinds of Italian bees—the leather-colored (often called the three-banded) and the five-banded. The latter bees have been bred especially for the color, and sometimes are more irritable and less hardy than the former. The red-clover Italians are simply one strain of the ordinary leather-colored.

Bees may be shipped almost any distance. By express it is possible to ship across the country; and if the bees are prepared in good shape they should go through all right.—ED.]

No More Bees Shipped into Imperial Co., California.

At a meeting of the Board of Supervisors of this county an ordinance was passed for the protection of the bee industry of this county. This goes into effect Feb. 1, 1912. On and after that date no more bees will be permitted to be brought into this county. This act became necessary because so many bees were being brought in from infected counties. This county contains about 11,000 colonies of bees; and with prospects of a poor season in coast counties there was danger of importing brood diseases. Any violation of this ordinance is punishable by fine or imprisonment, or both.

A. F. WAGNER.

Inspector of Apiaries of Imperial Co., Cal.
El Centro, Cal., Jan. 15.

Clusters Hanging Clear to the Bottom-board in a Temperature of 19° below Zero.

I am afraid that a good many bees have "gone the route." One man I know, who will not spend a dollar for a bee-journal, lost eight stands of bees early in the fall. They all starved to death.

I winter my colonies on their summer stands. They are still all right. The clusters are hanging clear to the bottom-board. Yesterday morning it was 19 degrees below zero.

Plattsmouth, Neb., Jan. 8.

J. NIELSON.

Why did the Bees Destroy their Own Queen-cell Cups?

I had a colony last spring. While I was looking through it I found five queen-cell cups partially built, and just laid in by the queen. About a week later I went with a new hive, with the intention of dividing, but there was not a cell to be found. I wonder what had become of those cups or partly built cells.

Filer, Idaho.

LOUIS A. BARBEZAT.

[Is it not probable that a swarm had issued meanwhile?—ED.]

Something Needed to Kill the Grass.

What the bee-men want in this part of the country is some way to kill out the grass and weeds among the hives so that the mountain or brush fires will not destroy whole apiaries as they have done this year.

San Marcos, Cal., Jan. 9.

G. F. MERRIAM.

Our Homes

A. I. ROOT

Wist ye not that I must be about my Father's business?—LUKE 2:49.

Rejoice and be glad, O daughter of Edom.—LAM-ENTATIONS 4:21.

Rejoice in that day, and leap for joy.—LUKE 6:23.

I have several times remarked that my chickens at times talk by actions almost as plainly as words, or sometimes even plainer; but it was a lesson and a revelation when, a few days ago, a dog not only talked to me but he preached to me a most wonderful sermon—the sermon I am going to try to give you this beautiful morning on the second day of the new year. I have read many wonderful stories of canine sagacity, but many of them I did not believe; and I am frank to say that, had I not seen it with my own eyes, I fear I should be loath to credit what I am going to tell you.

I was sitting at my typewriter, as I am now, when a strange dog came trotting up the cement walk. Supposing him to be a tramp dog that was probably hungry, and that would likely hang around if we fed him, I was about to drive him away as gently as I could, for he seemed after all to be a nice-looking dog. I went toward the screen door just as he came up opposite on the outside. Before I opened my mouth to speak, however, I paused, because of his bright look of intelligence. He was a beautiful shepherd dog, and his appealing look at once attracted my sympathy as well as curiosity. As soon as he saw he had my attention, he turned partly around and looked toward the gate and then again at me. Following his look I was startled to find one cow partly through the open gate, and another inside greedily grabbing the luxuriant bright-green Bermuda grass. When he saw I had taken in the condition of things he made a quick jump toward the cows and gate, then turned back as if waiting permission from me to drive the cows back. Of course I said at once, "You are a real good doggie, and I shall be very glad to have you drive them out; and I am everlastingly obliged to you for having so kindly taken an interest in my property and my premises."

Now listen while I tell you how he managed it. He could not do any thing with the cow that was rapidly getting further and further into the yard until he first got the other cow out of the gateway, where she seemed bound to "hold the fort." Accordingly he first tackled her, and with much skill and good judgment crowded her back, clear out of the way. Then he went for the other cow, kept her out of the shrubbery, and, after he had driven her safely outside, came up to me for a word of praise for doing so skillfully what very much needed to be done. After I had given him a good patting on the head, and called him repeatedly "good doggie," he hurried off through the

gate and was off, as if he felt he had, perhaps, delayed some important errand.

A few days later, while a drove of town cows were passing he came in again to give us warning. The gate was again unhooked, and was open a little way. This time Mrs. Root was present, and she said the dog should be rewarded for repeatedly rebuking us for our own carelessness. But he was bounding off again just as she succeeded in throwing a piece a biscuit toward him. At first he acted as if he had not time to come back and get it; but finally deciding it would hardly be courtesy to a lady he came back, picked it up, and started on again. He did not stop to eat it, but kept it in his mouth; and when she threw him a second piece he looked at it a minute, and then seemed to decide he must not waste any more time, and was off with big bounds. At present writing I have not been able to decide who is the owner of this remarkable dog that seems to be looking after the affairs of mankind in general.

At the risk of having some of you think me irreverent, I am going to confess that this dog made me think of the first of our texts to-day; but I would put it this way: When he decided he could not stop to come back for the second piece of bread, he had in his sagacious mind "Wist ye not I must be about my *master's* business?"

Well, the above is, at least to me, surprising; but it is not all of "my dog story." Some time afterward I stopped to leave a package at the express office up town. As I had to go to the grocery, the bank, the drugstore, postoffice, and other errands, my mind was busy for fear I should forget something. By the way, let me tell you I am getting bravely over my forgetfulness. I can now attend to half a dozen errands or more, and not forget any of them. Wonderful, isn't it? Now listen: Ever since I commenced going without a regular supper, and eating only apples, my memory has been constantly improving. In other words, I was losing my memory and getting old prematurely just because of eating *three* meals a day when *two* were a great plenty.

Well, on that morning, when I was rushing out of the express office because I had left my auto-engine running, a strange dog kept getting in my way. He danced up and down, ran before and behind me, and nearly jumped over my head while he gave voice to sharp quick barks of joy and animation—bow, *wow*, wow! Just as I began to say to myself, "Why, what makes that dog act so strange?" I took a good look at him, and, behold, it was my shepherd-dog friend. He was appealing and pleading for just one word of recognition and a pat on the head, and to be called "good doggie" once more from some one he had in past time served.

Do you see the point of this *dog* sermon? Now, when I had stopped to talk with him

and assure him I had *not* forgotten my faithful and devoted friend, his joy and gladness seemed to know no bounds. His joyous attitude over just a little kind recognition has been a rebuke to me ever since. And, by the way, is there anywhere else in the round of the whole animated creation such an exemplification of the text as a happy dog? "Rejoice and be glad." Had not a lot of us (we who are professing Christians, for instance) better take a pattern after a well-fed and well-trained dog? Are there not others than dogs who are literally hungry for a word of recognition, sympathy, or encouragement? perhaps some have done you important service in times past, and you have been so busy you have forgotten all about it.

This dog might have said truthfully to the bystanders who wondered to see the dog single me out from all the rest, "Why, Mr. Root and I both belong to the same church, and our delight is to serve all humanity wherever our services may most be needed."

Once more, are we rejoicing and being glad as we might be and ought to be? Have we not just as good a right to be glad as our canine friends? and have we not as much reason to be glad *every day* of our lives?

Belonging to the same church reminds me of an incident of years ago. A profane and drinking man was in the habit of swearing and blaspheming on the streets when a little under the influence of drink, and in this way he would often collect quite a crowd just to hear him swear. As nobody seemed to want to interfere (for he was a tough character), he seemed to be getting worse; and one day I decided I would try to stop him; and if I failed I intended to appeal to the authorities. I came up behind his back, and the crowd began to snicker as they looked toward where I stood, expecting, doubtless, to see more fun. He finally turned and faced me, and stopped entirely in his harangue. Some one said, "Why, Dave, what made you stop all at once when you saw Mr. Root was in the crowd?"

"Why, boys, I stopped because brother Root and I both belong to the same church."

The idea that the speaker ever belonged to *any* church, or *could* belong to any church, caused an uproar of merriment; and, if I recall correctly, I pushed forward and took his hand and called on all present to witness that David had confessed before the crowd that he belonged to the church of Jesus Christ. He was sober enough so he remembered what he had said, and it paved the way for several talks with him, the outcome of which was that he promised to stop drinking and swearing, for a time at least, and promised me he would come to me and give me notice *before* he drank another drop. For a year or more he was a sober man, saved his money, and cared for his family; and people began to hope he was a changed man for good. Finally he came to me, reminding me he had kept his promise so far, but, for certain reasons, he had decided to go back, partly, to his old habits. I reasoned, begged, and implored, but to no

avail. I finally urged the needs of his family. Said I, "Mr. H., you have more money now than you used to have?"

"Yes," admitted he, as he took out of his pocket a great handful of silver, "I have a little more money; but on the whole I think I will try a little drink for a while."

I did not know then, but I found out later, that during his hard drinking he had incurred a disease that is not easily managed, and Satan had put it into the head of this poor lost soul, ruined both in mind and body, that his forced abstinence was what made him feel so badly, and that a little drink *occasionally* would bring back his old former self. Poor deluded man! the drink only aggravated the trouble; and not long after, when I met him on the street his former jovial manner was all gone, and he told me he was near to death's door. He had scraped up a little money from friends, and was going *alone* to the city to see if any of the great doctors could give him any help. My conscience troubles me now to think that, if I had given a little more encouragement when he had done so well (like the shepherd dog), he might have tided over Satan's temptation, lived for years, and died a Christian after all. "Be ye not weary in well doing, for in due time ye shall reap if ye faint not."

PUMPKIN PIE AS AN ARTICLE OF DIET,
FROM AS HIGH AN AUTHORITY AS
DR. H. W. WILEY.

Our readers may recall that I questioned whether pumpkin pie is, as a rule, to be recommended as an article of diet. Well, our good friend Neal submitted the matter to Dr. Wiley, our United States Chemist. Below is what friend Neal says, and under it is the letter from Dr. Wiley.

In GLEANINGS for Aug. 1, 1910, A. I. Root throws mud at my eating pumpkin pies. Now, he can throw mud at my eating pumpkin pies, all he wants to, and it will be all right. However, the doctors claim that fat meat or lard is easy to digest, something like apples. Fat meat is an injury when burnt; however, as the lard content of pumpkin pies is doubtless what Mr. A. I. Root objects to, I think pumpkin pies should be all right. I have Dr. Wiley's opinion on the matter. I hope you may publish his letter, as I know of no better aid to eating lots of honey than squash or pumpkin pies.
Jonesboro, Ind. C. A. NEAL.

Mr. C. A. Neal:—I have your letter of the 3d instant in relation to the wholesomeness of pumpkin pie, and your reference to the opinion of Mr. Root that it is unwholesome. I am not competent to decide opinions of this kind respecting the wholesomeness and unwholesomeness, as a great deal depends on the individual. Foods that are often well relished and well digested by some persons will be rejected and regarded as injurious by others. Personally I am very fond of pumpkin pie, and have eaten a great many in my time, and hope I shall live to eat a great many more.
Washington, D. C. H. W. WILEY.

SOY BEANS IN OHIO.

I notice you mention soy beans in GLEANINGS. I have been growing them for three years. This year I thrashed about 100 bushels from 3½ acres. I think I have a very fine strain of medium green. If they are as valuable as you claim, I can raise many pounds of "beef scraps" to the acre. I like the coffee made from the early varieties.
Baltic, O., Oct. 21. JACOB MCQUEEN.

OPIMUM, MORPHINE, COCAINE, ETC.; A WARNING.

I have been a reader of GLEANINGS for about twenty years, and I do not remember seeing in A. I. Root's department any warning in regard to the use of powerful drugs such as opium and its products (morphine being the most common), chloral, and cocaine. As the use of such comforting drugs has grown to great proportions, both by evil persons and also by well-to-do and well-meaning persons who do not exercise enough care, I thought a little warning and perhaps help to some who have come under their binding power would be good.

The subject has been brought to my mind again strongly, because a very good woman of a little over fifty has just been taken to an asylum because of insanity caused by the use of morphine given by her husband who is a doctor; another is much used up by the excessive use of a nerve medicine which included chloral given by her doctor. She was taking six different kinds in two doses. I happened to see the prescriptions. Another whom I know has spent a whole farm for help since the doctor caused her to get the morphine habit. The doctor has the farm and she has the habit.

I am fifty years old, and took opium (in the form of laudanum) fifteen years. I took it for chronic looseness of the bowels. I was careful not to use much, and thought I would not acquire the habit; but after years of use I found I was almost a complete wreck. I could not digest any thing but two tablespoonfuls of the very mildest food, and could not sit up. My doctor was not to blame for my commencing, but said I could not stop. Finally, when I was so weak, we consulted another doctor. He said, "Take five drops less; then in five days take five less again, and so on till you are down to none." I took about sixty drops at two o'clock at night, and there was about two drops in a teaspoonful of nerve tonic that the doctor made for me. It was hard work cutting it down, but it could be done, and was done, and it is ten years now since I did it. I am not over the effects yet, but can now eat any thing in moderation; bowels are in perfect condition.

Opium is a terrible master. Don't take it. Use other means. I could have done without it and saved myself a lot of terrible suffering. And don't permit any doctor to give you cocaine. It is far worse than opium, and it is, as I said, a terrible master. One of the brightest and most skillful dentists we had in Pottstown became addicted to its use, and died in the very prime of life, unable to free himself of it.

I think coffee and the medicines having caffeine in them prepare the nerves for neuralgia. That is my plague now, and I think it is a result of migraine tablets for the relief of headache. Water has been a great help, drinking it night and day.

Pottstown, Pa.

W. W. KULP.

I heartily endorse all friend Kulp says in the above. In fact, I mentioned some time ago an experience with morphine, taken in a "cholera cure" medicine for chronic dysentery. Since using nothing but apples for my supper I have been entirely free from all troubles with digestion.—A. I. R.

THE WONDERBERRY UP TO DATE.

When the *Rural New-Yorker* made such a stir about offering the wonderberry as a "new creation," some scientific man, either in Washington or over in England, decided quite positively that it would be likely to send out sports that would produce poisonous berries. In reply to this, some of the defenders of the berries made fun of this assertion. The following clipping from the *Detroit Free Press*, sent us by one of our subscribers, would seem to show that it was not such a joking matter after all:

"WONDERBERRIES" MAY CAUSE DEATH; THREE MYSTERIOUS CASES OF POISONING AT LEONIDAS ATTRIBUTED TO FRUIT.

Mr. and Mrs. Michael Stealman, of Leonidas, are in a critical condition from eating "wonderber-

ries" from a bush owned by William Merritt, of that village, who recently died under mysterious circumstances.

The old couple, both nearly 70, ate the berries furnished by a neighbor, and this morning both were found unconscious on their bedroom floor, where they had lain all night. They are still in a state of coma, and not likely to recover.

It is now believed that Merritt, who died while on his way to a Marshall doctor to have his case diagnosed, died from the same cause.

Battle Creek, Mich., August 16.

THE "WONDERFUL DISCOVERY."

Mr. A. I. Root:—"Another wonderful discovery in the chicken business," in Oct. 15th GLEANINGS, interests me. I like to read your poultry department, and value it more than any poultry paper I take, although I do not take much stock in some of your wonderful discoveries. "There is more in the feed than in the breed of the hog." I find that, when I forget to feed my hens at night, the egg-basket is not so full the next night; also when I change from soft mash to dry feed there will be a falling-off in eggs. My hens are moulting now; and the same hens that laid nearly every day a few weeks ago are now laying one or two eggs a week. I have learned a few things. One is, you can not make a hen lay if she does not want to; another is, there is no use in trying to make a chicken live when it wants to die.

Factoryville, Pa., Oct. 25.

EARL SEAMANS.

"FORECASTING" THE LAYERS; TWO EGGS IN ONE DAY, ETC.

Mr. A. I. Root:—The following is an egg-laying report:

Last winter our one pen of 24 Silver Comb White Leghorn pullets started laying during November. I trap-nested them during the months of December, January, February, March, and April, so as to be able to hatch eggs from our best layers during the spring. I found no regularity as to their laying; in fact, one pullet laid two eggs in one day on two different days (that is, four eggs in two days), and another pullet laid two eggs in one day. Our hens were well fed, well housed, and well taken care of. They averaged, for the months mentioned, 19.5 eggs per bird per month.

Red Wing, Minn., Nov. 13.

E. A. LINDELL.

HENS THAT LAY TWO EGGS IN ONE DAY.

I have known hens that lay two eggs in one day—that is, one very early in the morning and another late in the afternoon, then another the next day about noon.

I have had Indian Runner ducks several years. They are great frog-eaters, and great layers in the spring and summer; but they do not lay in the fall or winter. Mine make nests in the brush about my pond, or near it. At one time one made a nest and hatched some ducks under a hive of bees. I find that these ducks very rarely drop eggs promiscuously, for they practically always lay eggs in a nest.

Carlton, Colo.

JAS. H. WING.

Kind Words From Our Customers.

OUT OF DARKNESS AND INTO THE LIGHT.

Mr. Root:—I wish I could meet you once, for you have saved me from a drunkard's life and from many other bad things. You have also taught me a lot about poultry, gardening, and health; and I have thanked the Lord, too, that I have learned to do right. I also thank you very much for writing so many good things in GLEANINGS. I will let you know of my experience, and how you helped me to be a different man in life.

This spring I was married to a nice bright farmer girl, 19 years old, I am 23. I took your advice to get married and start young. Of course it cost me something, for I am doing big farming; but with the help of the Lord I shall get out of debt. Then I am going to work to find a little place of my own, so I can raise fruit and poultry. I have a few colonies of bees for health and pleasure, besides running a 160-acre farm. I read many farm and poul-

try journals, also the Bible, and they all do me good. I also read T. B. Terry's health book.

The farmers here are mostly Germans. They drink, smoke, and chew tobacco. I soon fell into the same habits. I was getting to be a real drunkard. I also got drunk sometimes, and received some hard knocks. I did not care what I did. I also smoked and chewed, but still supported my good mother, for that is one thing I did not neglect. I never was a very strong boy, so my health was beginning to fail. But it was just then that I commenced reading GLEANINGS and your health notes. I soon found that fresh air is the best thing for me to sleep in at night, as I had a kind of lung fever. I also read your temperance talks, and found out that hard drink was the cause of my poor health. I was also having some sad experience in the way of drinking, so I thought I would put a stop to it, and I did so. I soon found, after leaving whisky alone, that my health was improving, and now I am as well as any young man, and I am living happy with my young wife, whom I soon fell in love with after I let drink and other bad practices alone. The experience I had with drink was this: Whenever I went to help my neighbors shell corn, thrash, or do other things, they would give me all the drink I wanted, and thus many of us got drunk. When night came I would go home weak and sick. I always thought the work tired me out; but it was the drink. I can now go home as fresh as I started, after a hard day's work at my neighbors'; and there are many others who are learning from me now. You don't know how much I thank you for your good talks in GLEANINGS.

Elk Creek, Neb., Nov. 2.

E. C. ULRICH.

[May the Lord be praised, friend U., for the good news you tell us in your kind letter. What you say about your good wife reminds me of a beautiful book that is almost worth its weight in gold. The title is, "Fell in Love with his Wife." It was written by E. P. Roe. Mrs. Root and I read it years ago, and we have both very much enjoyed reading it again. You can get it of Sears, Roebuck & Co., Chicago, for 33 cents. God grant that you may continue to "fall in love" with the dear woman more and more every year that God permits you to live together.—A. I. R.]

HOW A MAN WITH ELEVEN CHILDREN "MADE GOOD."

I like GLEANINGS very much, and I thank God for your fearless denunciation of evil, and your kindly advice to the erring.

I am much interested in W. S. Cohenour's letter, p. 639, Oct. 15, as it sets forth the condition I was in myself, twelve years ago. With a large family to support, and keen competition in my trade, it was like making two bites of a cherry. This was in old Ontario, so we gathered our little all and moved to this land of promise, New Ontario, Thunder Bay District, 15 miles from Port William. On arriving here 12 years ago, the 20th of Oct., 1899, I had only \$18.00 left to face a winter and buy food and clothing for a family of eight, besides buying all feed for four horses and nine head of cattle for two winters. The only milk cow among these died in the spring, and my finest horse died the following fall. I gave another horse away for lack of feed, so was left with a very unevenly matched team (a heavy mare and a two-year-old bronco). We settled on an absolutely wild farm. Now for results: There have been five added to our family. The eldest is now a qualified grain inspector, holding a steady position, with a home of his own, paid for, in the city. The next three are schoolteachers with salaries ranging from \$450 to \$525; the rest are smaller, but all aiming in the same direction. We have 80 acres under cultivation, farms well fenced, good buildings, barn 40 x 100 feet, house 20 x 28, with kitchen 12 x 34; cement cellar and cement walks; rural telephone in the house, communication with neighbors and the twin cities (Port William and Port Arthur). I have laid out over \$1400 in vehicles and implements. My farm stock has not diminished, and yesterday I put in the cellar 84 colonies of bees. I was 39 years of age when we came up here. We all rolled up our sleeves and went at it—I at my trade (plastering), and my good wife, boys, and girls doing their best on the farm at home.

Now, if I were an American, as Mr. Cohenour, instead of soliciting charity from the millionaires I would strike Mr. Roosevelt for a bonus for the fine large family.

I hope to see this man succeed, as I see that he says as I do, "Owe no man any thing."

As poultry seems to be what he aims at, I might quote prices here. From 25 cts. in spring and early summer to 60 cts. in winter. The demand for fresh eggs far exceeds the supply.

State River, New Ont., Can. JAS. M. MUNRO.

IS 75, BUT NO BEER NOR TOBACCO.

In reply to yours of Sept. 11, 1911, I would say that I have been a subscriber to your paper for many years—nearly twenty, I think. I have owned bees for sixty years with the exception of two years while in Nebraska. I value GLEANINGS highly, and don't know that I have any suggestions to make, realizing that it is managed by men who know a great deal more about the bee business than I do; and when I tell you that I am in my seventy-fifth year, and never drank a glass of beer nor a glass of alcoholic liquor except once (and that during a terrible pain in sickness), and never drew a whiff on a pipe or cigar, and never put any tobacco in my mouth, you can imagine how highly I value A. I. Root's Home talks and the stand he takes on temperance.

I am pretty much discouraged in the bee business. For three years in succession I have had hundreds of pounds of honey-dew, and have lost most of my bees from it during the winter. I don't like to sell the black stuff; and whether it is a secretion or an excretion I don't want to eat it.

Athol, Mass., Oct. 23.

A. M. V. HAGER.

"FORECASTING" LENGTH OF LIFE BY ONE 89 YEARS OLD.

I have been reading GLEANINGS for a long time. Some years ago, when you were teaching how to live to be one hundred years old, you said all who wanted to go along should "fall into the procession." I said, "All right, I will go with you, not for a hundred, but for ninety." I shall be 89 the 17th of November. I am well and hearty for my age. I ride over my farm on horseback. I go to town, three miles, in my buggy, every few days. I superintend all my affairs. I keep busy—so busy that disease can hardly get in.

Now, you may ask, how I do live. I aim to live moderately—not excessive in any thing. Moderation is the word I keep before me. I eat a little of almost every thing placed before me; but I eat moderately. I eat a little meat when I get hungry for it, but I often do without it for a week or more at a time. A boiled egg, a glass of milk, stewed fruit, apples mainly, and a biscuit make up my daily meals.

Tell me the manner of a man's life and I can reckon pretty close to the length of it. The manner of life and the length of it keep pretty close together. The young, many of them, go down from 18 to 30; others from 30 to 60, when, by a proper manner of living, they could reach the allotted threescore and ten. I think I shall reach 90, although a little feeble, and I hope you may go there and beyond.

Your Home papers are doing good. Keep them going for the uplift of our people. This is a long letter for an old man; but I wanted to say what I have, and more.

Nicholasville, Ky., Oct. 30. H. C. HERSPERGER.

A "HIGH-PRESSURE" A KIND WORD.

I received your letter telling me you would drop my name if I didn't renew my subscription at once; so I am aiming not to be dropped out of the finest class of people on earth, because I fully believe that they are the Gleanings family. Gleanings is one of the purest and cleanest of all the reading matter I have ever subscribed for. It is so straight against the evil, and so strong against it in every form, that it makes me love its pages. May God bless you all in your good work, and especially the dear old A. I. whose talks have done us so much good. You will find enclosed \$1.00 for the book I want, and Gleanings one year.

Jellico, Tenn.

C. WALKER.

THE OLD-FASHIONED RELIGION.

We always plan to read what A. I. Root says in the Home papers, Sunday evenings, as we are on a farm, and find it difficult to get to evening service. We endorse every word he says, and it does us good to know there are a few yet who hold to the old-fashioned religion.

Neenah, Wis., Oct. 16.

MRS. J. B. BLAKELY.

Gleanings in Bee Culture

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Editorial

In our issue for Feb. 1, Stray Straws had a corner cut out. The fact is, we did not get our usual batch of Straws (or supposed we didn't) and thereupon accused Dr. Miller of carrying them in his pocket instead of mailing them. The "goak" is on the editor this time, for he found the missing Straws under a pile of papers on his desk.

ONE MORE OF THE PIONEERS GONE.

We are sorry to announce the death of J. J. Ochsner, of Prairie du Sac, Wis. For a great many years Mr. Ochsner was one of the most extensive bee-keepers in his State, at one time owning six apiaries. His death, at the age of 83 years, which occurred January 15, was quite sudden, as his health was very good, owing to his firm belief in the value of fresh air and exercise. On the evening of January 10 he was reading to his wife, and had just finished reading our editorial notice of the death of James Heddon in the January 1st issue, when he was taken with a stroke of apoplexy, from which he did not recover.

Mr. Ochsner for a great many years was a reader of GLEANINGS, and we shall miss him as one of our most loyal friends.

HONEY STATISTICS, AGAIN; THE UNITED STATES CENSUS RELATING TO THE BEE-KEEPING INDUSTRY MISLEADING.

We failed to observe in our comments on the census returns, last issue, page 67, that certain States had made a great increase in the number of colonies over the previous decade. In this list we find Arizona, California, Colorado, Idaho, Iowa, Michigan, Montana, and New Mexico. It will be observed that this list comprises some of the Western States where irrigation is being opened up and alfalfa is being grown largely. In fact, in nearly all other States of the Union there has been a falling-off in the number of colonies. Yet in spite of all these figures more honey and beeswax have been produced in the last decade than during the previous period. This shows conclusively that the business is going into the hands of the specialists, and that those specialists are securing larger returns per colony. While it is true that producers in some of the irrigated

regions are not making as large an average as they did in the previous decade, owing to overstocking, yet the box-hive bee-keeper and the movable-frame bee-keepers who don't read the bee-papers, and secured anywhere from five to ten pounds of box honey have been eliminated, or almost entirely so. The elimination of nearly a million of colonies with a very low average production in the hands of such a class of bee-keepers necessarily brings up the average of colonies in the hands of the better class of producers. It is a case of the survival of the fittest.

PARCELS POST.

THE following editorial from the *Rural New-Yorker* for Feb. 3 is so much to the point that we can not do better than to use it, with the suggestion that every one of our readers sit down at once and write to his Senators and Representatives in Congress, and do it soon. Here is the editorial in question, from our esteemed contemporary:

Next week we begin the publication of the most striking article yet printed on parcels post. Prof. Price, of Ohio, is in Germany, and he will tell us in a plain, practical way just how the German parcels post is conducted and what it does for the German people. The time is just ripe for this, for now is the time to move upon Congress. There is a Presidential election this year. As they stand, both of the old parties are discredited in the eyes of the public. The leaders know this, no matter how they may bluff and bluster, and onside will outbid the other for popular favor if the demand can only be made clear. Here then is the opportunity for parcels post. If Congress can let it die there will be two or four years more of inaction. Right now, at the opening of this Presidential year, is the combination of time and the hour. Let every reader of the *Rural New-Yorker* realize this. It is the time to strike. Do not pass "resolutions" or sign petitions, but spend 20 cents or more in postage stamps and go right at the two Senators from your State and the Congressman from your district and tell them what you want. Do not threaten nor make any promises. Treat them as men—a little more prominent than you are, but still men with a good judgment of human nature. They will know when you mean business, or when you are chicken-hearted, and they will give you business or "taffy" as they size you up. No one can win parcels post for you without your aid. It will do little good to curse these men at home or at the store. Use the talking tongue to stick a stamp on a parcels-post letter.

HOW THE BEES ARE WINTERING; WHY WE ARE OPTIMISTIC.

SOME fears have been expressed by some of our correspondents that the severe winter we have been having may cause a heavy

loss. In answer to this we may say that so far conditions have not been unfavorable where the bees have been *properly protected*, indoors or out. The winter, up to the first of January, was very mild all over the United States. This put the bees in fine condition. Then it turned cold and stayed cold, with one or two rises of temperature—enough so that the bees could turn over in their sleep. The very severe cold that has been prevalent throughout the United States will mean an early spring if history repeats itself; and whatever the bees may have lost by reason of the cold will be more than made up by later conditions.

A condition that causes severe loss among bees are cold and warm spells in January or February, or both, during which bees get started in brood-rearing. A cold snap of two or three weeks after that is almost sure to have a disastrous effect; that is to say, an ordinary winter in January or February, followed by bad weather in March, is usually severe on bees. So far the weather this winter has been favorable rather than otherwise; for a *steady* cold does far less harm than warm and cold.

Examination of our own colonies, for example, about two weeks ago, showed all of them in splendid condition. At the present writing, Feb. 14, the United States Weather Bureau shows a letting-up in the cold.

It is fair to state that this winter will be disastrous on bees unprotected or in single-walled hives outdoors. On the other hand, it has been favorable for cellared bees.

CITY COUNCILS LEGISLATING AGAINST BEES; MAKING BEES STAY ON THEIR OWN PREMISES.

OUR attention has been called to a paper that is being circulated in the town of Gibsonburg, Ohio, for the purpose of getting the town council to pass an ordinance prohibiting the keeping of bees within the corporate limits of the village. We obtained the names of the mayor and president of the council, and wrote letters to them, explaining the important position that bees occupy in the fruit-growing industry by pollinating the blossoms. We showed that the few bees kept in town are probably only a very small part of those kept within a distance of a mile or more; that, even if those in town were removed, the chances are that there would be almost as many bees flying about as before. We concluded by stating that any such ordinance is unconstitutional, and cited the celebrated Arkadelphia case. The history of this famous case was written up by Thos. G. Newman, then General Manager of the National Bee-keepers' Association, and we sent them a copy of the pamphlet.

Last September we wrote to the mayor and councilmen of Huron, Ohio, where an ordinance had already been passed compelling all bee-keepers (and we believe there was only one) living within the corporate limits to screen the bees in the hives during July and August!

There are often local ordinances prevent-

ing any one living in a village from allowing his chickens to have a free range over his neighbors' lawns and gardens. No one objects to this; but suppose there were a hundred poultry-raisers situated just beyond the limits of the corporation, and the chickens in all of these yards were allowed free range over the town—how much good would it do to build fences around the few chickens kept in town? The absurdity is all the greater in the case of the bees, as they would die if fenced in so long, and they do no real harm any way.

Just the other day a gentleman gravely told us that he used to raise a great many grapes, but that it was no longer profitable, because bees from somewhere stung all his fruit. These stories, believed and repeated by intelligent people, are enough to make one think the whole world has gone daft.

In several instances where drastic measures were being taken by grudge-holders in towns or cities, we have been able to offer some help by way of writing letters, as mentioned before, to the mayor or councilmen. We shall be glad to do this at any time, for we have some strong literature bearing on the subject, that shows that bees, instead of being opposed by the intelligent fruit-growers, are actually welcomed by them. They are asking to have the bees put in their orchards.

THE BEE-KEEPER AND POULTRY-RAISER.

WHILE we are in hearty sympathy with the advice of the late W. Z. Hutchinson, "Keep more bees," for some specialists, the far greater number of bee-keepers, for one reason or another, can not go into the business extensively enough to make it worth their while to devote their whole time to it. For example, in many localities bee-keeping on a large scale would not be profitable, because the bee-pasturage is limited, or because the seasons are too uncertain.

Then there are others, like Mr. Louis H. Scholl, for instance, who like to have some hobby aside from their main business, to provide a change of thought and work and a certain amount of pleasure. There are still others who have the ability to become specialists in some other business at the same time that they are specializing in bee-keeping. To all such we would recommend poultry-raising; for, in our opinion, there is no other line of work that dovetails so nicely with bees. As has been pointed out by several of our correspondents in this issue, one who is capable of making a success with the bee business is also capable of succeeding with poultry, and *vice versa*.

An objection that is frequently made against combining two kinds of business is that one interferes with the other, so that the best results can not be secured from either. This may be true to a certain extent with bee-keeping and farming, bee-keeping and fruit-growing, etc.; for when the bees require the most attention and thought, there is need of "all hands" on the farm or in the orchard. But with the

poultry business this objection does not apply, for chickens require perhaps the least attention when bees require the most.

He is an extensive bee-keeper indeed, in the Northern States at least, who can keep his time profitably spent during the winter. It is true that some bottle and sell their crop through the winter months, but so few producers have the time to make a specialty of selling that we do not find more than perhaps one bee-keeper in a hundred who utilize their winters in this way. A certain amount of work is required, it is true, in preparing supers, repairing, and, in short, getting ready for the next season; but this should not take all of the time by any means.

A poultry-man, along in January, is usually very busy starting incubators, getting brooders ready, etc. Later in the season, as the chickens become older, it is possible to have more and more of the work done by an assistant, so that the bees may receive their share of attention. Thus the two lines do not interfere with each other—a fact which is proven by the constantly increasing number of producers of “honey and eggs.”

WHY THE CLOVERS DO NOT YIELD HONEY AS THEY DID IN YE OLDEN TIMES; CLOVER-SICK SOIL; LIME THE SOLUTION.

In our last issue, under the general heading of statistics relating to bee-keeping in the United States, we said we would have something further to say on the subject of clovers, and why they do not yield honey as formerly. We have heard a great deal concerning clover-sick soils; of land that will not grow red clover, but will grow alsike.

Many farmers who do not read the up-to-date farm papers have allowed their farms (as well as themselves) to become poorer and poorer until they have had to sell at a fearful sacrifice. For some reason, they do not know why, their farms have all “run down.” Farms that used to yield their fathers and grandfathers big crops of clover, now yield sparingly. Something is wrong. “The land is clover-sick—no good; might as well sell out and get a job in town.”

Later on, some up-to-date young farmer who has been to an agricultural school, or who thinks it pays to read progressive farm papers, comes along and buys one of these old farms that, through lack of knowledge, has all run down. Mark the change. In two or three years this “book farmer” (whom his neighbors ridiculed, perhaps) makes it as productive as when the country was new, or perhaps, in some cases, even more productive. How does this all come about? First of all, he begins to study the soil. He discovers it has been robbed, year in and year out, of some of the essential elements that make plant life grow. While stable manure has been applied, it does not supply every thing needed. In many cases these young farmers have found that the continued cropping of clover, year in and year out, has robbed the land of the

lime naturally in the soil until it has become too acid to grow clover as it should. In other cases, some other elements had been taken out.

It is getting to be the practice now among up-to-date farmers to send a sample of soil to the nearest experiment station in order to have it analyzed. In many cases the report shows a deficiency of lime; and when a farmer can not grow clover on his land in rotation with other crops he is in a bad way. Land that will grow alsike better than red clover shows a deficiency of lime; for alsike will grow on a more acid soil than red clover. The deficiency of lime in many soils has enormously increased the growing of alsike; and this has been of no small benefit to the bee-keepers. In some ways it may be better to let the farmer be in ignorance of the cause; but at this rate the soil will become too acid for even alsike.

Nearly all of Northeastern Ohio and the major part of Pennsylvania show a deficiency in lime. The same deficiency has been found in other States; Massachusetts, for example, doesn't yield any clover honey to speak of. The progressive farmers find they are able to remedy this condition by putting in lime; and when we can grow clover as we did in the days of our granddads, we shall have clover honey as they did. Unintelligent farming on the part of the don't-read-papers tillers of the soil has ruined many farms in the country. Their owners are badly in debt, and complaining of hard times. If there ever was a time when a farmer *ought* to be prosperous, it is right now; and any farmer who does not read a good farm paper is losing the great opportunity of his life to pay off those old debts and put aside a comfortable sum to take care of old age.

This sounds a good deal like an editorial for farmers; but the facts are, it is written for the farmer bee-keepers—not because they need the information, but because they need to get after their neighbors who are not reading papers. By so doing they can very greatly increase their clover pasturage, and clover pasturage means honey. In the mean time, we invite every bee-keeper, or any one else who reads these pages, to send to his nearest experiment station for bulletins on clover-growing and liming the soil. While it is not contended that lime is the only thing lacking (because clover will generally continue to grow some in spite of acid soil), it *is* contended that lime, where the soil is acid, will make it vastly more friendly to the clovers.

The editor had the pleasure of listening to Alva Agee at College Station, Pa., at a farmers' institute recently; and if there is a man in the United States who seems to understand this problem of making clover grow, through the use of lime, Mr. Agee is the man. Joseph Wing is another great authority. In later issues we hope to present something more from these men, particularly on *how* to lime the soil and what kind of lime to use.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

MR. EDITOR, please look at the sticker on the envelop that contains these Straws. It reads, "WE WANT the United States Government to establish a *parcels post*." These stickers can be had for \$1.00 a 1000 from "Parcels Post League," New York. [Good suggestion. See editorial elsewhere on the subject.—ED.]

BEEES WILL build queen-cells when the queen is caged in the hive "about the same as if she were out of the hive entirely," p. 58. I suppose that "about" means that cells will be started sooner, and more of them, if the queen be out of the hive entirely. [We accept your modification or correction.—ED.]

LOUIS SCHOLL gives alfalfa as an example of honey with decided flavor, page 38. I've been buying alfalfa to use in hot drink, as being nearest a pure sweet without flavor, but I've lately had some with too much flavor. Wonder what is the rule about flavor in alfalfa. [Alfalfa varies somewhat in flavor, depending on the locality where it is produced. In the southern irrigated regions it is apt to be a little darker, and perhaps a little stronger in flavor. In the more northern regions the color and flavor are improved. In some localities there is enough sweet clover and mountain sage in alfalfa to mellow its taste. The same conditions that affect alfalfa apply to clover—that is to say, there is white clover and white clover—some extra fancy, most of it good, and some of it poor or "off."—ED.]

"EVERY modern yard nowadays has a scale-hive," p. 48. S-s-say, Mr. Editor, do you mean to insinuate that my bee-yard isn't modern? Well, if you will insist, I suppose that part of the yard isn't as modern as it might be. [Yes, sir, 'e. Put up a scale hive. You may have a modern yard, but it can not be clear up to date unless you have a honey-barometer, so to speak. We have been in many yards where the owners would about as soon get along without a veil as without a scale hive. If the colony on the scales is a fair average one, neither the best nor the poorest, it enables the owner to keep pretty close tab on the flow of nectar. For example, if a drouth is on, and the nectar supply begins to show a rapid falling-off, the bee-keeper will not put on any more supers. But if the weather conditions are ideal, and the scale hive shows a big gain every day, the bee-keeper will take the opposite course.—ED.]

YOU ASK, Mr. Editor, page 69, if I might not find outdoor wintering to my advantage if I should try it again. Entirely possible. Not very probable. I've always had an idea that bees wintered out in the open air would be more rugged than when in the close air of a cellar. Then there's the gain

of earlier breeding. But with a furnace in the cellar my bees have perhaps as pure air as outdoors. The earlier breeding makes some colonies stronger, but it also kills some colonies. At any rate, it is morally certain that I would have a loss every winter from wintering outdoors—some winters a heavy loss—while in my well-ventilated cellar I don't expect to lose a single colony from wintering in any winter. What's best elsewhere might not be best for me. [It would hardly pay you, evidently, to make any change; but a large number (mostly beginners) are not having success with indoor wintering. To all such, if located in a severe climate, we would recommend wintering four hives in one large case, as practiced by R. F. Holtermann, J. L. Byer, and H. G. Sibbald, of Canada, with such marked success. See pages 693 and 694, Nov. 15th issue. Where climates are extremely cold, these big winter cases, we believe, for four hives are the equal of any cellar.—ED.]

THAT EDITORIAL, p. 35, sets one to thinking. But if comb honey is so scarce, why don't quotations show it? In GLEANINGS the highest for comb is 18 and extracted 12. Hardly any thing in that to induce extractors to take up comb. It may be said that comb is a luxury, and above a certain price will not be bought. But it didn't work that way years ago when it was higher than now, and kept with the price of butter. It's too much of a muddle for me to understand. [Market quotations at the present time do not give the true index of the situation. Early last season there was a big demand for comb honey that could not be filled. Buyers, fearing that a large crop might be held in reserve, did not offer high prices, as they feared being overloaded. Shortly Western comb honey began to come in, and prices on comb honey that would have advanced were held stationary. Several buyers have told us that they could have sold ten times the amount of comb honey if they could have gotten it when there was a call for it. The best demand for comb honey is in the fall and before the holidays. If there is no comb honey to speak of, consumers will go without. If, on the other hand, we bee-keepers will raise more comb honey, and have it *ready in time*, we shall have no trouble in selling it—that is, if it is of good quality. At the present time there is just enough comb honey held by one or two large buyers to hold the market fairly even. But the point is this: There is always a good demand for more comb honey early in the season. In seasons of plenty the early shippers will dispose of their crops at good prices, while late shippers, if they wait till the holidays or after, may be hunting a market. Comb honey, however, is getting to be more and more of a staple.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

A capital idea that, in a footnote, page 712, Dec. 1, regarding the value of a mat of corrugated paper on top of sections. When the case is handled bottom side up the combs will rest on a soft mat.



That picture on the cover of the Dec. 15th number is very pretty; but it almost made my back ache to look at it, to think of the work required to inspect such a lot. A lot of fifteen or twenty, four inches apart, is bad enough without a roof over them.



Mr. Byer's appreciation of the value of dry sawdust for a cushion on top of the hive, p. 713, Dec. 1, is creditable to his good sense; but after having used sawdust for many years we have come to the conclusion that fine planer shavings are better.



Passing through the markets of Washington one day this week I saw a two-story shipping-case of the style Mr. Foster, of Colorado, has so ably defended, and I must confess it was a very attractive package; but I noticed that three of the six combs visible through the glass were broken loose from the wood.



Stopping near Howard University, a college for colored people, I was awakened early Christmas morning by the colored students singing Christmas carols, and it seemed almost as though the sky had again opened, and the angelic hosts were singing "Peace on earth, good will toward men"—a beautiful custom, surely.



Let me add my testimony to the value of windbreaks for wintering bees out of doors. In our climate I would go some distance to locate a yard of bees where there would be protection, after seeing a part of two yards wiped out where exposed to the wind while the rest of the yard wintered very much better. See page 675, Nov. 15.



I have noticed a good deal of discussion of late as to whether a two or three inch glass is best for shipping-cases. It has been many years since cases with glass have been used here in Vermont, and I am wondering how large a proportion of shipping-cases manufactured in supply-factories are made with a two or three inch glass side.



Wesley Foster tells us, page 647, Nov. 1, how to introduce queens by baptizing. Very good. I believe it was A. E. Manum who told in one of our State conventions many years ago how to introduce a virgin queen by giving her a second birth by caging her in a queen-cell and letting her gnaw out like a young queen, and they accepted her the same as a young queen.

On page 713 Mr. Byer expresses the idea that alsike clover is not a drouth-resister. Well, perhaps not as good as red clover, but, mercy me! how it can stand water! Red clover is nowhere in comparison, and I have noticed that, during a wet season, we usually have alsike clover, whether it could be seen on the ground the fall before or not.



Our friend Wesley Foster never seems to lack for good common sense, and his ideas on the value of reinspecting and the qualifications of an inspector are well worth reading, page 714, Dec. 1. It is certainly a great deal easier to burn hives of bees, and to be spectacular, than to teach bee-keepers patiently how to cure and care for their bees.



Mr. Gates' article, page 717, Dec. 1, is of great interest. I noted especially what he has said on the wastefulness of feeding bees in the open air. I believe we have a good deal to learn yet as to how much waste such feeding brings, and what is the character of the little drops that the bees let fall on their way to their hives. I am yet to be convinced that it is water they have separated from the sweet syrup.



Looking over the government green or propagating houses in Washington, I found that tests were being made of a large number of seedling melilotus clovers, or perhaps varieties, in order to find one with a very small amount of the characteristic bitterness. If successful in the experiment it may be used more extensively than at present as a forage-plant. If it should come into general use it will add much to our honey resources.



Mr. Chadwick, on page 748, Dec. 15, tells how the ranges of sage in Southern California are being plowed up and the bee-forage destroyed, and predicts the time when the waste places will be covered by plants of greater economic value. Let me say that I saw in Washington, alfalfa from Northern Africa that will grow where there are only three inches of rainfall, and another variety that required an alkali soil for thrifty growth. Still another from Northern Asia thrives where it is so cold that the ground never entirely thaws out.



The editorial on page 710, Dec. 1, on the value of shade, is full of good sense. I have contended in the past, I believe, that bees do as well in the shade as in the sun; but by watching I have discovered that there is a decided difference in favor of those shaded but little and those in a dense shade. "Confession is good for the soul." But I should think Mr. Robertson, page 725, used more shade than is necessary for his climate. For those having outyards, I fear his methods would not be practical.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

BEES AND CHICKENS; HOW THEY WORK TOGETHER.

I have decided to have something to say on this subject because it is the special theme of this issue, and because I have found that the combination of bees and poultry can be successfully followed, even by the extensive bee-keeper. In my case, I was much interested in pure-bred poultry even when a mere boy, and this interest has been the first incentive for keeping some poultry for a number of years. When my bee business was enlarged to greater proportions, so that it became a real business that was quite strenuous at times, especially during the rush of the season, the old slogan so often repeated, that "a business man should have a hobby to ride to take his mind away from his business cares," became one that received no little attention. Possessing that natural love and interest for pure-bred poultry, and seeing profitable possibilities in it besides the mere recreative value as a "hobby" to ride, besides already possessing a beginning in the dozen or more fowls in the back yard, poultry-breeding was adopted immediately.

I have ridden this hobby so successfully that my yards of Barred and White Plymouth Rocks, Rhode Island Reds, and White Wyandottes, are the best in the community, and are admired by many visitors who come to see them. The appreciation of this success has culminated in being chosen among the many poultry-raisers here as president of our poultry and pet-stock association.

The profits so far have not been large, on account of the initial investment necessary in the venture, which was really begun as a hobby rather than a paying dollars-and-cents business, but it has been a remunerative one from the very start.

It may be well to state that my beginning with poultry was just the same as that of my bee-keeping career. I had only a few fowls at first, just as I began with only a few colonies of bees. From this small start I began the upward climb on the ladder of success, as experience and better knowledge of what to do were acquired. I mention this to show the importance of beginning small and then growing into the business.

As a combination rightly managed, bee-keeping and poultry-raising may be profitably followed, even though neither line be restricted to the plane of a hobby. My own experience has left me without a doubt on this question. But it will be well to bear in mind that not all persons can manage too many irons in the fire, and such should not attempt the combination. Some reach their limit very easily with only a few hundred colonies of bees and no more, while some who could manage more bees can not look after two lines of business entirely different.

For those who want a "hobby," the keep-

ing of pure-bred poultry will fill a good place, and by those who want to combine bee-keeping with some other side line this combination will be found profitable if they are able to look after both properly. Those who find it better not to combine any thing else with bee-keeping should follow the late Mr. Hutchinson's motto, "Keep more bees," or my own, "Keep more better bees better."



MAKING A BEGINNING WITH BEES.

The cover design of the January 1st number of GLEANINGS was most appropriate for a beginner's number. It answers in picture, better than words can explain, the question so often asked, "How can I best make a beginning with bees?" The picture shows it. Order a two or three frame nucleus with a good queen of Italian bees from a reliable bee-keeper or queen-breeder. This will be shipped in a light crate by express so the shipping charges need not be very high.

In the mean time prepare a ten-frame hive. Have it nicely painted, and all the frames filled with full sheets of comb foundation except the two or three that will be replaced by the combs of the nucleus ordered. This hive should be nicely located in the shade of a tree where the morning sun brightens and warms up the hive in the fore part of the day, but where it is protected from the heat later.

With the hive material, have ready a good smoker and a bee-veil, so necessary in handling the bees. The smoker should be well started, ready to be used at the proper time, even with the gentlest bees; but the veil may be kept about the crown of the hat so that it can be pulled down over the face in a moment, in case of an emergency.

All in readiness, when the nucleus arrives take it to its new place of abode. After the veil has been adjusted, bring the smoker into play, blowing just a little smoke over the bees as the shipping-crate is pried open and the nucleus placed in the hive. Of course, you must admire the beautiful bees as the combs one by one are carefully handled. The next thought is, How does the queen look? To some it will be a little difficult to find her at once; but a little practice will soon enable the beginner to spy her very quickly. When the combs are all in place, the hive closed up, and the rest of the bees shaken out of the crate in front of the hive, it is a pretty sight indeed to watch them enter the new home with a loud hum of gladness as they fan the air with their raised wings.

If flowers are in bloom and nectar is plentiful, the bees will soon make progress and will build out the foundation into beautiful straight combs in the rest of the frames.

All this, and more too, is brought vividly to our minds by gazing at that cover design. A better one could not have been chosen.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

January is rapidly passing, with little rain of any consequence, and barely enough moisture to keep the surface growth alive. We have only about eight more weeks in which we may reasonably expect rain, making the outlook at best rather dark.

A book that I value as highly as any in my library is "Langstroth on the Honey-bee," published in 1870, two years previous to my birth. It was presented to me in 1886 by Mr. E. A. Rhea, of Loring, Kansas, and was the foundation of my knowledge of bees.

A capping-melter is not a great necessity here. If there is sun enough to warm the air sufficiently to extract, you can usually get your cappings melted in a solar extractor; and what little honey goes out with the drained cappings will very likely come in handy to feed weak colonies later on.

Those in reach of the orange may get the usual orange flow, for the month has been exceptionally warm, and breeding has started in earnest; many queens have spread three or more combs of eggs. I consider this of no advantage to those on sage ranges; for if the dry weather should continue it will cause heavy breeding, which will mean large consumption of stores that may be greatly needed before another season.

I was offered 25 cts. for the best wax delivered at Los Angeles, but an eastern buyer offered 28½ cts., F. O. B. I wrote to Los Angeles, regarding the other offer, and received this answer: "Your party who is offering 28½ cts. is, in our judgment, over-shooting the mark." I shipped the lot, 202 lbs., east and received check for \$57.57—\$7.50 more than I could get in Los Angeles. Most of our Southern California wax finds its way into Los Angeles, where at times the receipts are quite heavy, and prices slump beyond reason.

During the winter many sojourners from various parts of the country, who are interested in bees, have called on me, and I have enjoyed these visits very much. To those who may yet come, I would ask that you call at my home, 725 East High Ave., after 7 P.M., where you may have an hour or two and welcome; but do not expect me to beguile to come to our State, or you will be disappointed. If you are succeeding where you are, why change? If not, find out the reason, for it may be your own fault, and a fault not easily cured out here. There are more paying locations, not taken, in many States east

than there are in this State. You of the East have cold winters, to be sure; but loss from actual cold is much less than the average bee-keeper thinks; for every colony that dies is said to have "winter-killed," regardless of other conditions. Our normal mortality rate here is over 10 per cent.

My first bee-hive was a "George"—the only one, to my knowledge, ever manufactured on a rush order by this process. George, whose last name is Kutehenthal, had been married to my sister but a short time, and had not acquired a very large stock of tools. I was helping him plant corn on my fourteenth birthday, when I found a swarm of bees on a bush—the first swarm I had ever seen. I wanted them badly, but had no hive. George came to my rescue with a sharp hatchet and a 1×12 rough pine board. He soon had a hive chopped out and nailed. The hiving was successfully accomplished, and the foundation laid for my first apiary. Thanks to George.

The advisability of compensating for colonies destroyed by inspectors, mentioned by J. L. Byer, p. 5, Jan. 1, like all questions, has two sides. There have been cases in this State where inspectors have been guilty of no less than wanton destruction of property in their over-zealousness to enforce the law. On the other hand, some have been so grossly negligent that conditions in places have become deplorable. An inspector should be a man of good judgment, and should try, as far as possible, not to destroy any thing of value. Several cases have been called to my attention where quantities of hives and combs have been burned. There is no excuse whatever for such drastic action. The wax and hives are not diseased, and, if thoroughly boiled, could be saved.

Our so-called State association has been called for Feb. 6, 7, 8, at Los Angeles, which will be long before this reaches the readers of GLEANINGS. It is my earnest hope that the various organizations over the State may be amalgamated into what may be properly called a State association, our so-called State association being in reality no more than a Southern California organization, and should be so termed until all our smaller ones are included with us in one grand and truly State organization.

Since writing the above, GLEANINGS has come to hand, and I have read the words of Mr. Harry K. Hill, page 55, Jan. 15, and for the most part I agree with him. The northern brothers feel that it is a case of the tail trying to wag the dog, which belief, I believe, is not entirely unfounded.

Conversations with Doolittle

At Borodino, New York

KEEPING LOTS OF BEES.

"How many colonies of bees should one keep to be a well-to-do apiarist? I became interested in bees two years ago, and bought five colonies. I have fifteen now; and my sales, since I began, have been about \$156. I have been figuring a little on keeping 50 colonies, and from my experience so far I thought I might average \$500 a year from that number; but I have just read that no apiarist becomes well-to-do unless he keeps a lot of bees. The writer of the article advocated keeping several out-apiaries, numbering from 50 to 100 colonies each, besides having as many colonies in the home apiary as his field would support. If I must engage in bee-keeping on such a large scale in order to become well-to-do I shall feel somewhat like abandoning the whole thing."

"Much will depend upon the way you interpret that expression, 'well-to-do,' as well as the meaning of those four words, 'a lot of bees.' We will consider the last four words first. Some would construe these to mean a lot of bees in each colony. How often has it been reiterated that a colony of bees numbering from 50,000 to 75,000, and even 100,000, produces the best results, while one from 10,000 to 15,000 gives its keeper little if any surplus! In spite of the prevalent idea that bees work for nothing and board themselves, the colonies numbering between 10,000 and 20,000 are the rule rather than the exception, and, consequently yield only a small surplus, even though a bee-keeper may count his colonies by the hundreds or thousands.

"With such small colonies a much greater proportion of the whole colony must stay at home to care for the inside needs of the hive, thus leaving few fielders, than in case of the colony having 100,000 bees where 10,000 can care for the inside work, and 90,000 can go to the field, thereby rolling in an amount of honey that is sure to insure success.

"Then, too, these 90,000 fielders should come on the stage of action at the right time for the best nectar-yield, whether from clover, basswood, buckwheat, or what; otherwise they may not be as satisfactory as the smaller ones; for 90,000 bees on the stage of action at the end of any flow of nectar become consumers instead of producers; and unless another flow comes before they live out their 45 days of useful life the stores of the hive will constantly decrease, and the keeper of such colonies be compelled to feed for winter. From a financial standpoint the man who can keep 500 or 5000 colonies of bees so that each colony will have from 75,000 to 100,000 active fielders when the main flow of nectar is on, will far outshine the man who is contented with only 50 colonies.

"As to the expression, 'well-to-do,' suppose there is a bee-keeper who is capable of

bringing up to the necessary standard 500 or 1000 colonies of bees in several out-apiaries, and that he is able on the average, year after year, to do as well with them as our questioner hopes to do with 50 colonies, his income each year would be from \$5000 to 10,000, and, doubtless, in the eyes of the world he would be considered well-to-do. Yes, and I must confess that, by the great majority of the masses, this would be the feeling; for in the up-to-date newspaper lengthy articles are devoted to one who has been separated by death from his millions, but merely a scanty inch in some obscure corner is given to the one who has secured *eternal life* by believing on our Lord and Savior Jesus Christ, with a fortune in this world of only \$100 left for his burial.

"But let us come back to our questioner: He can keep his 50 colonies without the extreme exertion, racking of brains, and the muscle required by a larger number. He can have time to examine into the minutiae of affairs inside the colony; to go into scientific research, to study nature, and, from this, nature's God. In short, his powers can be spent in the uplifting of himself and those about him above the sordid things which come to the one whose only god is money. But can a man be considered 'well-to-do' with an income of only \$500 a year? The majority of the families in the United States do not have that income, and many of the preachers of the gospel, who are successful in winning many souls for Christ, do not have a larger salary. A good definition of 'well-to-do,' from my standpoint, would be, contentment, with godliness, is great gain."

[Mr. Doolittle is absolutely right when he emphasizes the importance of a large force of bees of the right age *in time* to go to the fields. We also wish to indorse his sentiments regarding the "well-to-do man."—ED.]

Cotton Smoker Fuel.

It is unfair to jump on a fellow just because he has said something you *think* isn't so; but when you walk all over him afterward it is stamping it in. You fellows can keep right on using cotton rags and waste for smoker fuel. It's wholly your party; and if you prefer the sort of fun which it brings I wish you happy days. Greasy cotton waste is an entirely different proposition, and I didn't say any thing about it, but merely talked of cotton. The grease gives a very different result, also a stink; and, furthermore, greasy waste is prone to spontaneous combustion—particularly so with some oils. A handful of it in a workman's pocket called his attention to its presence by consuming a sizable portion of the front of his overalls and trousers, and anointed him with a large and rosy blister. Happy days!

Well, boys, if you will fill two smokers, one with cotton rags or dry waste and another with burlap or wood in some form, then work ten colonies with one, then ten with the other, and so on, you may be inclined to leave me alone and let me catch my breath. If you can not wait to try the trick, ask Latham.

Providence, R. I., Jan. 29. ARTHUR C. MILLER.

General Correspondence

BEES, POULTRY, AND TRUCK-GARDENING IN FLORIDA.

BY FRANK M. BALDWIN.

My experience last October may help the readers of GLEANINGS to form a better judgment of this part of our great country. I came into this section in June to do some preaching; found surveying also, and have been here most of the summer. After preaching Sunday at Palmetto I took an early train Monday to inspect seventy-five colonies of bees on the edge of the Apopka Marsh, in Orange County, that Mr. W. S. Blaisdell had offered for sale. Mr. B. is old and infirm, and wants to convert his apiary into cash.

He was awaiting my coming at Gainsboro Station, and soon we were journeying behind his mule, toward his home, three miles away on the banks of the canal that was made for the purpose of draining the 50,000 acres composing the big marsh. This tract is rich sawgrass land, similar to the Everglades. The effort to reclaim it was not successful. The canal must be dug deeper and wider. Darkness overtook us just as we arrived at the house, and on this account the examination of the bees had to be postponed until Tuesday.

INSPECTION OF THE BEES.

The morning's inspection revealed a fine healthy lot of bees in old and worn-out hives. The style and sizes are original with their owner, and have given him the best results. He makes them from native lumber, much of it undressed. They have served him well for seventeen years, but are no longer strong enough to withstand three miles of jolting in wagons over rough roads to be followed by 150 miles in a freight car. The thought of buying and taking them to Parish was reluctantly abandoned. They were strong in bees and brood, in just the right condition to gather the honey-flow from goldenrod and myrtles. Mr. B. expected to extract three tons of superior honey from them within the next sixty days. He usually gets two crops—one from saw-palmetto in the early summer, the other in the fall. Last fall the marsh was too wet, and he got no surplus. This year conditions are more favorable than usual, and he hopes to make up in some measure for the failure of the palmetto in May and June. He is not near enough to any groves to get the benefit of the orange-bloom in February. It is only once in seventeen years that the two flows have failed him, and I believe he has never had to feed his bees.

Mr. Blaisdell took me down to see the old drainage canal. On the banks I met and talked with Mr. Belamy and his son, who are making a living from four acres of extra good truck land, and are salting something down in the bank. They use no fertilizer

and grow no celery. All other Florida vegetables are planted by them and sold at a local market. They rarely ship north. Three small towns within twelve miles of their patch take all they produce.

Mr. Blaisdell has 27 acres of rich land that his bees have paid for; and his neighbors say his industrious insects have paid for the fertilizer and labor he has wasted in his attempts to grow and market vegetables. Here was a convincing illustration of the truth that one must find out what he can do best, and devote himself to that. Truckers and bee-keepers are born rather than made.

TRUCK-FARMING.

At noon the train was again boarded. This time the destination was Sanford and the fall meeting of the Presbytery of St. John. While there Mr. and Mrs. Rosetter entertained me with true Southern hospitality. Mr. R. has a truck-farm of 40 acres, three miles in the country, which he and his son operate. He lives in town and the son on the farm, though both of them spend all the daylight hours in the field with their hands. Six helpers are employed all the year, and in the busy season as many as forty are at work. Lettuce and celery are the principal crops, and the seed which was sown in the beds several weeks ago is now up. The former will soon be transplanted into land which is now being carefully prepared for it.

Early Thursday I went with Mr. R. to the farm and enjoyed a two-hours' inspection of the seed-beds and the well-tilled ground. The seed-beds are more than half a mile in aggregate length, and are tended with great care. Lettuce requires ninety days from the time of planting until ready for the market; and celery about six months' time and labor. Beans, potatoes, etc., follow. Then corn is planted. This year this—the third crop on the land—yielded more than fifty bushels to the acre. This intensive farming calls for a ton of fertilizer to the acre.

There are ten artesian wells on the land, and rows of small tile have been laid 20 feet apart and 18 inches deep to use their water in sub-irrigation. Four thousand dollars' worth of boards for blanching celery are stacked up in great piles near the many buildings. These last, together with the many wells, tile, and other improvements, have called for an outlay of \$28,000, over and above the cost of the land (a rather large investment on forty acres). When, as in 1909, the crop brings less than it costs to raise it, the feeling must be rather bitter. But they do well most years. Once they netted \$12,400 from 16 acres.

The Sanford Board of Trade, to show what is being done in this favored region, took the Presbytery for a launch ride across Lake Worth Wednesday afternoon, and for an auto ride among the celery-farms Thursday.

A POULTRY FARM.

Mr. Throop, a man nearly seventy years old, has *three thousand* White Leghorns on his poultry-farm at Enterprise. He was feeding them corn. He is hale and vigorous, looking less than fifty. He keeps 2000 laying hens. One-third of the present flock are not old enough for the laying-pens. His birds are in fine condition. The old ones have about finished moulting, and will soon be "shelling out" lots of eggs. The average is 130 a hen per annum. The eggs sell at 35 cents a dozen to regular customers. Feed and corn cost from \$1.30 to \$1.40, according to the price of grain. Mr. Throop prefers to buy rather than grow feed. As the care of his flocks calls for all his time, he lives among his birds. They need constant attention 365 days in the year in order to net \$2.40 per hen. Two thousand times \$2.40 is an attractive income. But don't drop every thing and rush into poultry, for you may not have the genius for many details, some of them very unattractive, that make success in that business. Poultry-keepers are like truck-growers—born with a gift for it. Go very carefully until you find out what you can do, then go your length at that. Many have tried to imitate Mr. Throop. They are now sadder men, and, let us hope, wiser ones.

My judgment after two years' experience in Florida is that it is the land of opportunity for a great many. Yet it will bring loss to more than it will bring benefit. Its climate is its greatest asset. Do you need winter warmth and comfort? Have you the money or the energy to grow truck or develop an orange-grove? Come down. You will find the climate everywhere. The proper location for the others must be carefully sought. Much time and investigation must be given to it.

Parish, Fla., Oct. 16.

SYSTEM IN BEE-INSPECTION.

BY WESLEY FOSTER.

I am enclosing an inspection-report card which I have gotten up from suggestions received from the State Entomologist of Indiana, and from Dr. Phillips. The object of the cards is to save making a second inspection in every case. As Dr. Phillips says, the more we can accomplish in making each bee-keeper realize the importance of doing what he can to stamp out the disease, the more valuable will the inspection be as an educative force.

The cards, when torn along the perforated line, are card-file size, and can easily be kept for reference. The top-card is filled out by the inspector and signed on the back by the bee-keeper whose bees have been examined. This top card is then torn off and retained by the inspector, as it contains a record of the work done as well as a signed statement that the bee-keeper will treat the colonies that are diseased.

The lower card is filled out and given to the bee-keeper as a notice to treat all diseased colonies. The bee-keeper, when he has treated the bees, signs the statement of treatment and mails the card to me. The inspector in the meantime has sent the top card to me so that, if I do not receive its mate within the time allowed, I can write him to learn whether the bee-keeper has treated the colonies, or I can write directly to the bee-man, asking for an explanation for not receiving the statement of treatment as agreed.

I have used this plan in some of my inspection work this past fall, and it works well. The only difficulty is in getting a prompt report from the bee-keeper. Some have to be written to once or twice before sending in the statement of treatment.

The limit of time in treating colonies has been placed at ten days, though there will be cases where less time will be given, and some cases may arise where more may be given. This matter rests with the inspector.

Boulder, Col.

Upper card (front).

Owner
Location
Number of colonies inspected.....
Number diseased.....
Number in box hives
Remarks
Date.....191..... Inspector.....

Upper card (back).

STATE OF COLORADO

ENTOMOLOGICAL DEPARTMENT.

Sirs:—I agree to follow the instructions for curing the colonies of bees affected with foul brood, and to mail statement of treatment before 191.....

Signature of bee-keeper.

Lower card (front).

..... Colo.....19....

OFFICE OF STATE ENTOMOLOGIST

WESLEY FOSTER, STATE BEE INSPECTOR, BOULDER, COLORADO.

The Bee Inspector has this day examined the bees belonging to and found colonies affected with foul brood. All bees having any form of foul brood are to be treated as indicated on the back of this notice.

STATEMENT OF TREATMENT.

I have treated all the bees mentioned as diseased above, and have carefully followed the directions.

Signature of bee-keeper.

Mail this card, as agreed, before191, to Wesley Foster, Boulder, Colorado.

Lower card (back).

TREATMENT FOR FOUL BROOD.

In the evening, after the bees have quit flying, brush or shake the bees from the old combs into a clean hive containing no drawn comb.

Burn all the old combs *at once*, not the next day. Do not allow even the smallest drop of honey from the diseased colony to be exposed to robbers, or the disease may be carried back to the healthy colonies.

The hive bodies, covers, and bottoms may be saved by scraping all wax and propolis from the interior surface and charring with a blaze from kerosene poured over the inside of the hive.

If no honey is being gathered from the flowers, the treated colonies should be fed or given combs of honey from healthy colonies to fill their hive, after the bees have been on the starters for at least 48 hours.

DUCKS AND DUCKLINGS DOWN IN FLORIDA.

More about the Duck that Laid 100 Eggs without a Miss.

BY A. I. ROOT.

[To the question, "What occupation goes the best with bees?" we have often replied, "Poultry-raising;" but W. Z. Hutchinson's invariable reply was, "More bees." If our senior editor, the writer of the following article, were asked what occupation goes the best with poultry-raising, we fancy he would say, "More ducks."—ED.]

On page 61, Jan. 15, I said the duck that gave the 100 eggs without a miss was still laying. Well, to-day, Jan. 22, she is still at it, making nearly two months without a miss *this* winter. Of course, there is a possibility of a mistake; but as her eggs are of a slightly bluish-green tint, and also larger, than any of those laid by her daughters, a mistake is not likely. None of her numerous daughters have so far come up to her. Like the good woman described in the last chapter of Proverbs we can say of her, "Many daughters have done virtuously, but thou excellest them all."

While speaking of the size of duck eggs I believe it is usually the case that most of them vary more or less in size. Well, I am led to believe this is largely a matter of nutrition. For some time I had been leaving a pan of corn with them all night long; but finding the birds and rabbits were also helping themselves I covered their grain the



A. I. Root admiring his favorite Buttercup rooster.

last thing at night, and uncovered it at daylight. By so doing there was a saving in feed; but I soon felt sure the eggs were not uniformly as large. To get up a good-sized egg every 24 hours requires good nourishing food, and that *without stint*.

Up to Jan. 1 I was boasting among the neighbors that I was getting four eggs a day



The duck that laid 100 eggs without a "skip," together with her comrades, as they go out every morning on the drainage canal. The two with the dark bills are ducks, and the two with yellow bills are drakes. The drakes are also lighter in color.

from four ducks right along; but on Dec. 31 one of my laying ducks did not get home at night with the rest, and Mrs. Root then reminded me that one of our largest drakes failed to return the day before *Thanksgiving*. At the time, I explained it by saying the alligators must have taken him, as they were going up the canal nearly half a mile every day. By the way, Mrs. Root thought I had got it a little too strong when I said nothing was ever stolen in our neighborhood, and remarked, "Do you think it reasonable that an alligator would take a particular fancy for a fat drake just before Thanksgiving, and again for a duck just before New Year's day?"

Well, I still feel sure no one around here has harmed my ducks; but if they really were stolen I think it was done by strangers from afar, who are usually prowling about with guns at this season of the year.

Since Jan. 1 I have been getting only two duck eggs a day much of the time, the two younger ducks not doing as well as their mother a year older. One of them, after finishing her laying, wanted to sit, for about a week; but, notwithstanding, I am putting every egg under hens or in the incubator. Out of 51 eggs in the incubator, 45 were fertile; but I hatched out only 19 ducklings, most of the rest having "died in the shell." I wrote to Cyphers people about it, and they seemed to think I did not give the eggs sufficient cooling.

The incubator is running again with 47 fertile eggs, and so far (11 days) they seem to be strongly fertile. As I hatched only 19

I said to myself I would take great care and not lose a duckling; but just this morning (when they are 11 days old) I found one squeezed in between the fireless brooder and the fence. How could I have been so careless as to leave such a place instead of pushing the brooder clear up to the fence, leaving no vacancy? Perhaps "locking the stable door *after* the horse is stolen" is better than doing nothing; but I would give a silver dollar to have that bright lively little friend back to life again, and to cure the sting of a guilty conscience that follows me all the day long. The fireless brooder answers here beautifully with ducklings. At first for a few nights while it was quite cool I gave them a heated brick; but I am led to believe it was not necessary; for one night when it seemed warm I omitted it, and it turned suddenly cold with a trace of frost. They were only about four days old, and I went out just at daylight with fear (and trembling) that they might all be stiff with cold. Not so. As soon as the entrance was open, out they shot and took a run clear to the other end of their yard in the frosty morning air; and after a big feed they cantered about until the sun was up.

Now in regard to the pictures accompanying this article. If you will turn back to my "duck story," April 1, last year, you will get a much better idea of them. While on the train coming here one man remarked to another, pointing to me, "Is not that the chap that goes down to Florida every winter to raise ducks to feed to alligators?"

Eggs are now only 30 cts. a dozen, so that



The waterfall that comes down over the mouth of the "alligator cave." It is made to spread out like a great soap bubble by the stream falling on the smooth surface of an inverted five-cent fire-shovel.



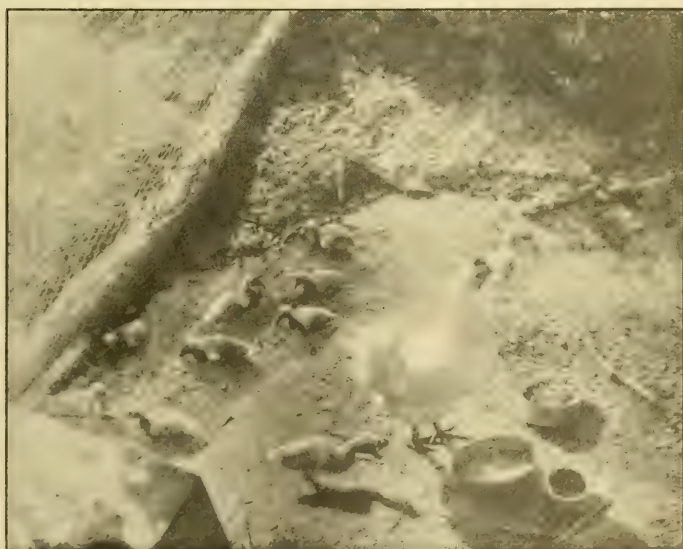
The mother Leghorn hen that did not hesitate about tackling an open-mouthed alligator in defense of her ducklings. The waterfall and alligator cave are just behind her. The drainage canal is right on the other side of the poultry-netting.

it takes rather more than nine eggs a day to feed the whole lot; and the way the 18 ducklings are beginning to tease for their meal, bran, and middlings, wet up with sour milk, the feed-bill promises to get *still* larger; but as I am getting from 30 to 40 eggs a day they are paying very well after all. The ducklings are crazy for lettuce; and here in Florida, at least, it would seem that lettuce is almost as necessary for all kinds of poultry as wheat, corn, and oats.

GIVING THE WEAK-LINGS A FAIR CHANCE.

About a year ago I told you of a single duck egg that was under two different sitting hens, and was finally hatched in my home-made incubator. Before the egg was even pipped, the inmate would peep every time I tapped with my finger-nail on the egg. Well, after he

was hatched I put him with some incubator chicks that were several days older than the duck, and of course they "made life miserable" for him, especially at feed-



Another view of the Leghorn hen and her ducklings, giving also a glimpse of box with netting front, where they are secure nights from all sorts of "night prowlers."



"The house of refuge." Netting "protector," for giving the weaklings or younger ones a fair chance.

ing time. As he was younger; and as ducks must have soft food when first hatched, I tried to give him bread and milk; but, dear me! he was "snowed under" before he got a single bite of the dainty prepared for him alone. Finally I "got busy;" and with the aid of a barrel-hoop and some inch-mesh netting I made the very handy implement pictured above.

In the picture it is shown placed over the ducks hatched out by a Leghorn hen, for we make use of it for many different emergencies, such as catching a chick or chickens that have "sticktights" or "sorehead," shutting up a sitting hen so other hens can not intrude, penning up a sitting hen (so she can't "bite") while you arrange her eggs or nest, and for various other purposes;* but it answered the purpose most admirably with my "lone duck." When I gave him his bread and milk and some water where he could satisfy his vigorous appetite in peace, while a "howling rabble" surrounded and climbed over his stout barricade, it reminded me vividly of the words of that beautiful and comforting passage in the 23d Psalm: "Thou preparest a table before me in the presence of mine enemies," etc.; and also of the promise, "Thou wilt keep him in perfect peace whose mind is stayed on thee." Dear reader, it just now occurs to me that this is not *altogether* a chicken story nor even a duck story, and I am going to switch off just a little to ask you if this Bible promise is indeed true, as I have held it up before you? Does the great Father ever place a shield or screen around us so we can actually "sit down" in quietness and peace

while the ungodly are leaving no stone unturned to misrepresent and defeat us? I am sure he does. If we fail to find that haven of peace and security when we need it so much, the fault is ours and not that of the great Father who loves us, and loves to have us come to him when weary and overburdened. Read once more the inspiring and comforting words I copied from the *Sunday School Times* on page 30, Jan. 1.

Much is said about hens' nests that are vermin-proof, or nests made of metal so that not only can vermin find no hiding-place, but the whole nest-box may be most effectually "fumigated" by simply lighting a match and setting the nesting material on fire. Such a nest I have figured below, and every *bee-keeper*, at least, can usually find such a nest-box on his own premises without costing him a cent.

Cut out half of one end, as shown in the picture; turn down the flap for a slanting doorstep, and you have a nest that will hold a hen and chickens at night safe from all prowlers, if you just fasten a bit of inch-mesh netting over the open front. As the five-gallon can is air-tight, you will have to close it with netting, especially in warm weather, to give the hen and her brood plenty of air. And this reminds me that, up to this date, Jan. 20, we have not seen an insect nor disease of any sort on any fowl on our premises, and I can almost say we have not seen a housefly. Very likely the latter is because Mrs. Root is so extremely careful not to leave anything outside or inside that can bait the flies and cause them to "hang around" our premises. Truly, prevention *is* better than cure. The last of the two pictures shows the tin-can nest occupied with a hen and her ducklings. She has gone in for the night; but a couple of the youngsters seem to be



Hen's nest and "all-metal" coop for hen and chicks.

*When a hen steals a nest out in the open, and wants to sit, I just set this over her as I go around the last thing at night, and leave her thus shut up and protected until I gather the eggs next day, when it is removed to let her out for necessary refreshment.



J. F. Kight, Southport, Ind., who has successfully combined bee-keeping and squab-raising.

tardy about "getting to bed." They probably want to make just "one more" visit to the feed-dish and little drinking-fountain.

BEE-KEEPING AND SQUAB-RAISING COMBINED.

BY J. F. KIGHT.

As the good old farmer used to say, "I have just laid my crap by." Well, I have just now (Nov. 24) laid my bees by until next April. I have the hives side by side

standing on planks 6 inches off the ground, with leaves under and all over them, a foot deep. They are well covered, and shielded from the west and north winds; yet I am a little afraid I shall lose a few. Last season was the hardest known for bees in this part of the State for many years. They got no honey during July, August, and September, and only a little in October from the white aster. During July and August I fed my 13 colonies a barrel of the best granulated sugar, and yet they did not seem extra heavy when I put them away. Only a few around Indi-



Bees and chickens in the same back lot, Detroit, Mich.

anapolis fed their bees, and I predict there will be more dead bees in this county next spring than have ever been known to die in any one winter. In fact, I now know of several colonies already dead, whose owners would not feed. If mine don't all die I expect to pick up a lot of empty combs in the spring.

I am combining the pigeon business with my little apiary. I keep both as a diversion from my regular business, and have a competent man to assist me.

While my bees are sleeping, my pigeons are making me nice money in the way of squabs and breeders. I have just sent a \$175 order to California, so I can not see why the bee and pigeon business will not go together nicely.

Southport, Ind., Nov. 24.

BEE-KEEPING AND POULTRY-RAISING IN A CITY.

BY L. LIST.

The regular readers of GLEANINGS need not be told that bees may be successfully kept in the city. They have often read about it, and some have tried it themselves. There are two points of interest, however, in the accompanying picture. In the first place, it shows that bees and poultry may well go together. One of the regular contributors of GLEANINGS recently stated that his Rhode Island Reds proved to be a nuisance

in the bee-yard. Our White Leghorns never molested the bees in any way, but, on the contrary, treated them with marked respect.

Another fact worth mentioning in regard to the photograph is this: Our bees stand within six inches of our church school, which is attended by over 200 children. There has never been the slightest complaint. There are no windows on the south side of the building, and the bees have their flight in that direction. Even if there were windows, I would not be afraid of trouble, because bees are not nearly as vindictive as commonly supposed.

For four years this apiary has been run for extracted honey, and there has not been a single swarm during this time. Plenty of super-room and bottom ventilation kept back the swarming fever. I may add that this photo was taken in the prosperous season of 1910, and not in the poor one of 1911. You will notice that most of the supers are of the shallow kind; and I would advise the novice who is keeping just a few bees and runs for extracted honey to give them a fair trial. I have followed the advice of the gentleman from Texas, Mr. L. H. Scholl, and have never regretted it. The deep supers may be better for the owner of many colonies, because a given amount of honey may be more quickly extracted; but for the man with few colonies the shallow ones are ideal, because they are more easily handled, and do away with the heavy strain on the back.

Detroit, Mich.



Bert H. Masters in his bee-yard at Edison, Ohio. Mr. Masters now has winter cases on all his hives, which, he leaves on all summer.

BEES, CHICKENS, AND DUCKS GO WELL TOGETHER.

BY BERT H. MASTERS.

In my experiment with chickens, ducks, and bees, I find that success depends largely upon the amount of care taken. I have always been successful; and, since I can not supply our regular trade with honey, eggs, and poultry, I am arranging this year to increase my apiary to 75 or 100 colonies, and to double my poultry business. My intention is to keep only the best stock.

My two boys are wonderfully interested in GLEANINGS, and are storing away in their minds every thing pertaining to bees and poultry that they can get hold of. I intend to give them full charge of the yards this year to try them out.

The boys insist that I mention a little egg-basket which has been in daily use for a period of 38 years. It belonged to their great-great-grandparents, and it holds six dozen eggs. We have just laid it aside to be kept as a relic. It has averaged three trips to market per week for 38 years. If you take your pencil and figure this out, you will be surprised at the number of eggs that this basket has carried. I do not know the average price during all this time, but I believe it has been about 15 cts.

I have discovered a great remedy for millers and moths, and I have been much interested in watching the practical demonstrations of my discovery. I put my eighty Indian Runner ducks in my bee-yard one evening when the millers were quite bad, and the ducks were victors in a very short time. I am confident that they prevented



Some of Bert H. Master's chickens at Edison, Ohio. He finds that chickens, ducks, and bees go well together.



R. O. Dickson's poultry-yard, La Harpe, Ill., showing brooder-coops used as winter cases, for 55 single-walled hives of bees. Chicks occupy the coops in the summer in connection with Cypher hovers.

the millers from getting the upper hand of several weak colonies.

I winter my colonies on the summer stands, but I use winter cases packed with shavings. I do not remove these cases now, but leave them on all summer, as I have

found this advisable on account of the sudden changes of weather which we have. When preparing for winter, I cut and fit several thicknesses of building-paper and place them over the top of the hive-cover.

Edison, Ohio.

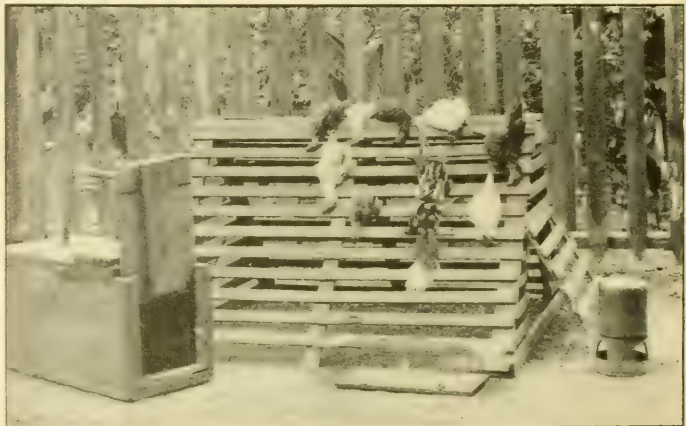
SKUNK CAUGHT AFTER HE HAD KILLED 16 CHICKENS.

BY W. A. PRYAL.

A couple of years ago some skunks began nocturnal visits to my chicken-yard. It was in the fall of 1910 (in September, I think) that I noticed that the young roosting chickens in one of the poultry-houses seemed disinclined to take to their roosts when night came on. They seemed to prefer to go into the house with the older stock or else take to the tall trees. Then, a few days later, my man George heard a commotion in the chicken-yard one night, and on investigating the cause of the disturbance he found a skunk trying to make his exit from the yard through the meshes of the wire netting. Not wishing to attack the animal, without a suitable weapon, the

man returned to his room to get his shotgun. On his return, a minute or so later, the skunk was gone. The rascal had already killed a good-sized young chicken, and would have carried it off, but he could not get it through the fence.

Every night after this, ladders were removed so that skunks could not climb to the roosts, and the younger chickens in



A skunk caught in a steel trap, and some of his victims of the night before.

coops near the house were carefully inclosed. However, one night one of the coops was not as diligently looked after as it should have been, for the door was left a little apart, and through the opening a skunk made its way. What a slaughter of innocents there was that night! There were sixteen well-grown young chickens and their mother in the enclosure that night; and of the lot, fourteen young ones were found dead in the morning. One had been caught by the mauler, but escaped with a small cut on the back of its head. All those killed had been bitten on the back of the head at the base of the brain.

Such slaughter roused my dander. The Irish in me was up, and I was bent on getting that skunk or "bust." And I got him! And it is with much pride and delight that I herewith present a picture of the dead skunk and some of the fine chickens he so ruthlessly murdered, together with several of the traps that were set that night to capture him. The trap that "did the work" was a small steel-jaw trap that was set in the center of the large coop in which the chickens had been killed the night previous. About a foot above the trap one of the dead chickens was suspended by a wire. I believed that the skunk would return again to kill more chickens or else claim his prey, and I gave him this opportunity to claim the one that was hung up in so tantalizing a way, and he was bent on getting it. He danced into the trap; the trigger was sprung, and the skunk firmly held by one leg until he was duly killed in the morning by George.

Since then I have lost no more young chickens, that I am aware of, by skunks, though we have set traps for them now and then. Only one has since been caught, and that was a few weeks ago when one was secured in the large box trap that was set to catch rats. And here I might remark that this trap is the best rat-catcher I ever knew; it gets the rats when all the wire and other traps fail. I suppose it is such an innocent-looking old thing that the most wary old rat is thrown off his guard, and walks into the box to nibble at the bait, which is usually a piece of old raw or decayed meat.

Oakland, Cal.

CAUGHT IN THE ACT.

A "Tame" Skunk Eats Bees.

BY J. D. YANCEY.

One day last summer, late in the afternoon, my sister being out in the apiary, called to me to come to the aid of my bees before they were all devoured. Of course I came on the double-quick, and you may imagine my surprise as I passed around the

corner of the kitchen to behold a skunk, almost as big as a badger, near the entrance of the second hive, calmly eating bees. I was so angered at his cool impudence that if I had had a club in my hands, I would have—on the spur of the moment—"lamed him one" good and proper. But on second thought I knew this would not be the best policy so near the dwelling.

While I stood watching him he finished devouring the first bee; and, running up on the alighting-board, seized another from the crowded entrance, rolled it under his front paws on the alighting-board, then backed off to a safe distance and proceeded to eat it, beginning at the head and finishing it to the tip, sting and all. The skunk seems capable of running backward with as much celerity as forward; and his movements as he runs up and grabs a bee, smashes it with his fore feet and then backs off, are made so rapidly as to seem almost automatic in action.

The bees seemed to be angered very much by his murderous assaults, but for some reason they would not attack him; in fact, in a few minutes they became so intimidated that they every one disappeared into the hive. Mr. Skunk, however, had evidently robbed bee-hives before, for he knew exactly how to proceed. Running up again to the entrance, he drummed on the floor of the hive making a noise much as you would by drumming lightly on a hive with your knuckles. This caused two or three bees to dart out of the hive, and one of them was promptly seized. In his eagerness, however, he lowered his head too near the business end of the bee and received the sting full in the end of the nose. Well, Mr. Skunk was certainly surprised, and he dropped that bee just as if it had been red-hot. He seemed to think the scraping motion was the proper scheme for removing stings, for he backed off about ten feet as fast as he could go, scraping his nose on the ground and sneezing as if he had taken a whiff from a pepper-box.

May be you think that gave him enough; but he seemed to be following the advice of those bee-keepers who tell you to scrape out the sting and forget about it at once and it will cease hurting promptly.

Being a little leary about tackling the same hive again, he next came to the hive near which I was standing and caught a couple of bees, stopping to eat them so near me that I could have kicked him—had I been so minded, of course. Once he ceased operations, and, sitting up on his hind feet, gave me an impudent stare, as much as to say, "If you don't like it, help yourself."

I suppose he did not like the flavor of the bees from this last hive, for he soon went back to scratching in the entrance of the first; but the bees appeared to be thoroughly cowed, for none of them would venture forth, and after a few more futile efforts his Skunkship took himself off into the fast-gathering darkness, and I saw him no more.

Bridgeport, Wash.

BEES AND POULTRY ON A BACK LOT IN A CITY.

BY L. J. GRIFFEN.

My experience in bee-keeping and chickens is more of a "has been" than a "present" experience; but for a number of years I took off about 400 pounds of "fancy" honey and raised about 300 fancy chickens (White Wyandottes) on a city lot one hundred feet square.

My occupation is that of customs examiner (deputy collector and inspector), and the last four years my work has increased so much that I have had to give up most of my bees and chickens, and I miss the monster that they used to bring in.

I have always been very fond of honey, and was seldom able to get any that was especially good; so about ten years ago I began to study bees. After six months I dreamed of bees every time I went to sleep; then I bought two colonies in Danzenbaker hives from a friend who was planning to leave town. They were hybrids. I sent to two different queen-breeders for a queen from each, and divided the two hybrid colonies, making four. One queen was excellent, and soon had her hive full of brood. The other was no good—could barely fill five frames, and later I killed her. The first year I secured about 140 pounds of honey, of which two-thirds was fancy.

The same year I commenced to study chickens; and before spring arrived I was dreaming of chickens. I bought an incubator and two brooders, and 220 White Wyandotte eggs (I was the pioneer White Wyandotte chicken-man in Bridgeport or vicinity).

I had excellent luck (?), and hatched 153 chickens. When they were about three weeks old they suddenly commenced to die off. I finally found that the trouble was moldy chick-feed, tiny particles of green mold being mixed with the fine grains. I threw the rest away and got some that was fresh. I seldom buy chick-feed now, for several reasons—first, it is almost impossible to buy fresh chick-feed early in the season; and old chick-feed of the previous year is very likely to cause bowel trouble; second, if scattered on the ground, all particles that become covered will turn moldy, and then when uncovered will be eaten, resulting in a dead chicken a week or two later; third, little chickens three days old will eat wheat and thrive on it.

I figured out that a mash composed of corn meal three parts, bran one part, middlings one part, and beef scrap one part, would be about right. I think so yet, after nearly ten years' trial, although when I find it hard to get good middlings I use corn meal two parts, bran two parts, and beef scrap one part, substituting one of bran for the middlings, and dropping one of corn meal.

Out of my hatch of 153 I raised 116. I saved the best for breeders, and killed the cull pullets for broilers, and the cull cockerels

were made into capons, which I learned to do by following directions in the book that came with the caponizing set.

In performing the operation at first one bled to death, which we ate as a broiler, and I cut the lung of one a trifle, and he had wind puff. On tapping him with a pen-knife he recovered. I made one change. The directions said, use carbolic acid in the water; but I used bichloride of mercury, one to one thousand—7 grains to 1 pt. of water. Those capons made my reputation for delicious chickens.

About three or four weeks before killing I would shut four in a coop with slatted front and bottom two feet high, two feet long, and eighteen inches deep. I had four of the coops in a row about the nests. There was a dropping-board below the coops so that it could be taken out and cleaned, and a shelf in front to hold the feed and water. They were fed mash entirely. When there are four in a pen, one seeing another eating, he thinks he must eat also. The second day before killing I gave some charcoal, and the last day nothing at all. My pullets that were hatched about April 20, commenced to lay about Oct. 7.

The same year I had four colonies of bees. The previous fall I had killed the poor queen, and had given them a frame of bees from my best queen from which they had raised a good queen. I fed in March and April about two dollars' worth of sugar and got about fifteen to twenty sections from each colony of apple-blossom honey with a little dandelion mixed with it. We have very few dandelions in this section.

During the summer flow my two hybrid colonies put up a solid super of chestnut honey, and my two Italian colonies a solid super of sumac honey, both flows occurring at the same time. Chestnut honey is greenish yellow, rather dark, and of poor flavor. Since then the chestnut-trees have all been cut down, for which I am thankful.

Before leaving on my vacation in September I looked at the bees and found very little honey. On my return there was a sour smell, and I immediately concluded the bees were dead, and the nectar and brood soured; so I opened the hives and was surprised to find each super crammed with honey—mixed goldenrod and wild aster. I put another super on each colony, and they also were filled with honey. One season the bees stored wild-aster honey in the super as late as November 7.

The following spring I started early with my incubator, hatching on Washington's birthday. I placed one of the brooders in the cellar, put a glass top on the two compartments, and kept the chickens in the cellar for three weeks. By that time they needed damp ground (the cellar has a cement floor). I made pens 6×12 feet across the front of the lot next door, 50×100 ft. (it was poor sandy soil on which I could make nothing grow). The top of the pens was made so that it could be rolled back for the purpose of digging the soil. First rye, then

oats, and finally wheat, were planted, as there is nothing better for young chickens than sprouted grains.

I kept the incubator going, hatching about once a month. The pullets which had hatched on Washington's birthday gave me the first egg on July 2—four months and ten days. These had been put in a sort of colony house, so that I had at one end laying pullets; and at the other, chickens only two weeks old.

After three years the ground became so rich and full of poison for chickens that I had to move the pens. I planted corn on that ground for three years in succession without any further fertilizing, and by that time I could use it for chickens again. I find that corn is the best renovator of the soil.

On clear Sundays at least 500 people used to come to see the chickens, the pens being next to the street. The fame of those white chickens spread far and wide.

I feed only whole grains, and have, at present, movable coops so that they can be rolled or carried to fresh locations, about six weeks at first, and then about every two weeks after that. I always expect my pullets to lay at the end of five and a half months. I attribute the early laying to the large amount of beef scrap that I feed.

In 1903 I hatched a pullet that I leg-banded as number 8 (I started leg-banding that year). She proved to be a wonder, laying 264 eggs in one year. In 1907 I had her in a pen with four of her daughters, and the five laid 88 eggs in 20 days.

My third year with the bees was even better than before. They had increased to six colonies, and gave me about four hundred and fifty pounds of honey, most of which was fancy. All No. 2 honey is cut out and given to the neighbors. I have had complaints but once, and that was because a neighbor was sore about another matter.

In the fall of 1904 I discovered that my best hive was rotten with foul brood. I found that bee-keeping in the suburbs of Bridgeport and for a distance of ten miles each way was steadily decreasing because of foul brood. I then started the agitation which finally resulted in our present foul-brood law, which, while better than nothing, is far from ideal.

Bridgeport, Ct.

POULTRY AND BEES.

They Go well Together if the Man "Stays by the Job."

BY H. E. ZECH.

As a breeder of Silver Comb White Leghorn hens and Indian Runner ducks, and as a bee-keeper and farmer, I wish to give my experience, with some statistics, regarding poultry and bees, for the benefit of the GLEANINGS family.

I started bee-keeping in the spring of 1906 by buying four colonies in movable-frame hives of no standard make, and the

same season I got about 150 lbs. of fine white honey, some in sections, some chunk. This looked good, so I increased by buying ten-frame Langstroth hives and Italian queens, and now have 17 colonies and about \$125 worth of hives and fixtures, and \$21.44 to the credit of the bees, not taking into account the honey used and given away.

During 1911 we kept from 150 to 225 hens, which returned to us \$635.63. No eggs were sold for more than 40 cts. a dozen, no account was taken of eggs and poultry used, and I have no exact account of all the feed consumed; but the mash, beef scrap, shell, grit, and charcoal, fed to both young and old stock, amounted to \$99.79. I use simple home-made self-feed hoppers arranged with a 2½-inch-wide second or trough to catch that which crumbs from the hens' mouths, and which would otherwise be lost. By arranging the troughs right as to height, a nice slanting cover can be hinged to the front of the feeder to keep rats out at night, or to shut the hens away from the mash a part of the day at certain seasons. By keeping the mash accessible to the stock, practically no damage is done to the growing crops close by the buildings. I should judge that the mash, etc., cover at least two-fifths of the feeding expense. For raising chickens, I use Prairie State and Cypher's adaptable hovers attached to 7 x 10 portable houses, which are used in winter for laying hens. Records of three flocks show that I raised 94 per cent, cockerels crowing when 29 days old, and pullets laying when 4 months and 13 days old.

I breed the English (or penciled) variety of the Indian Runner duck, of which I raised 97 per cent. They hatched June 6; and up to date, Jan. 18, they have given me 234 *white-shelled* eggs. Notice I said *shell-ed*, as some duck eggs sometimes have a dull dirty gloss which, when immersed in water, may be slippery or mucus-like, and which must be washed off in order to have the really beautiful white egg. See what A. I. Root says on p. 447, July 15. I do not expect that they will continue to lay, as we have been having very cold weather for three weeks. Before that, the weather was good for fall laying.

As to poultry-raising and bee-keeping going together, I will say that, so far as the most important factor, the man, is concerned, they agree well, for both pursuits require patience, persistence, and some enthusiasm. On nothing does success depend more than on the man who is among the bees and hens, and who cares for them. It is important that a beginner start in a small way with good stock, and increase as he can profitably handle more, all the time realizing that it is the *man* which is on trial, and not the bee nor poultry business, as both have been tried. And do not take up another branch if you have enough already. Do not go into any business deeper than it will allow you time enough to do some good sound common-sense thinking; for a lack of this is the cause of most failure, and will

lead one into the habit of laying it to poor luck when things go wrong, while in reality there is no such thing—only your failure to attend to some essential.

Seven Valleys, Pa.

A BEE-KEEPER'S REMINISCENCE.

BY WM. BEUCUS.

Years ago, when I first began my apicultural career and knew all about bees, I said one morning to my wife, "My dear, we're going to stay home this forenoon. The bees won't swarm to-day."

I began to busy myself by turning my attention to the lawn, humming at times little ditties, and breaking out vigorously at times in a deep bass voice which one of our friends heartlessly said sounded like a saw-mill in distress. In the midst of one of these outbreaks of feeling I was brought back to the reality of every-day life by the exclamation, "The bees are swarming!"

Upon reaching the bee-yard I found a swarm circling around without the slightest regard for any one's feelings. The bees finally met in convention on a huge limb high up in an immense oak. My heart sank within me; but hope returned, and I got the ladder. I made up my mind to sweep the senate, secure a majority in the house, shear the committee on rules of its power, and to make some innovations that would teach those bees where they were going to get off. I tied one end of a rope to my ankle and the other end to a basket, and mounted the ladder, scaling the trunk above the ladder like a monkey.

The campaign was nicely planned, and every thing should have terminated well, but "the best-laid plans of mice and men gang aft a-gley," as has been said by the poet.

I reached the bees safely, and found that they were full-blooded hybrids. Two or three bees faced about and stared in an unmannerly way that is always disconcerting to a sensitive nature; but I proceeded to pull up the basket in a calm and nonchalant way, as if the danger were a pastime, while my wife looked on proudly from below. I then proceeded to scrape off the bees with unerring hand. It was then that those hybrids made an exhibition of themselves that was entirely out of place. One, with foul intent, harpooned me on the hand; another went up my sleeve; but when they advanced in solid phalanx and made a flank movement, pouring in a volley of poisoned arrows through my thin denim trousers, I became disgusted and made up my mind that I wouldn't have bees that acted in that disgraceful way. I began to retire then.

"Don't come too fast," said my wife. I assured her that I couldn't. I was taking full advantage of gravity, although it was not intentional. Fortunately the rope, which was attached to my ankle, was fastened to a limb of the tree, and thus was prevented the disfiguring of the lawn. After a long interval (at least so it seemed to me),

my wife, who had gone after a knife, relieved me of the monotony of swinging, suspended by one leg, like a pendulum, fighting valiantly, and with perfect presence of mind, the bees which had taken advantage of the absence of a bee-veil, and were, without feeling, burrowing in my hair and clinging tenaciously to my face and neck. Even after I had gone into the house, had cared for the stings, and had fallen asleep, my slumber was disturbed by the eternal buzz, buzz, buzz of swarming bees.

Cadott, Wis.

FLIES AND MAGGOTS FOR POULTRY.

BY THOMAS DEWEES.

As an interested reader of GLEANINGS I can not refrain from having a part in the discussion concerning the use of stale meat, maggots, and the like as a food for poultry. That chickens may be used as scavengers is altogether correct; as, when supplied with such or allowed access thereto, they will eat all sorts of filth and corruption. But if we are going to use them for this purpose let us, for the time being at least, discard them as a food for our own bodies. That the quality and quantity of the blood is dependent on the amount and character of the food, is a fact well understood; also that it is from this life-giving current that every fiber and tissue of the animal body derives its strength and is built up.

Understanding this, I have about the same use for eggs and flesh of fowls laden with such loathsome germs as those must be that have been subsisting on putrid flesh and worms that are a product of the same, or, in fact, any decomposing or fermenting substance.

Now for an intelligent solution of this problem, I want to invite readers of GLEANINGS to make the following test: Take from your flocks a thrifty fowl and place it in clean comfortable quarters, and supply it with clean and suitable food, with fresh pure water, for a period of from eight to ten days; then kill and prepare it for the table; then in like manner prepare one that has been allowed to run at large, or perhaps fed as indicated. Note the difference in flavor, and decide for yourselves. Also the same difference may be observed in the eggs from hens receiving nothing but clean pure feed.

Now as to the destruction of flies, if I am not mistaken the fly that deposits its eggs on the flesh and decaying animal matter is a particular kind of green fly, often called the blow-fly; and while it is sometimes an annoyance it is one of the provisions of an allwise Creator for the quick disposal of these decomposing and offensive bodies that poison and pollute the air we breathe. If I am right, the more common fly that frequents our houses deposits its eggs elsewhere, very largely in manure-heaps, and kindred places where there may be a little extra warmth.

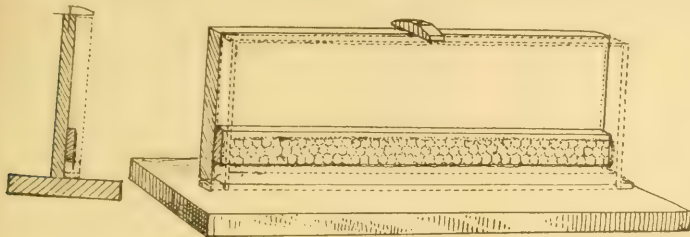
Barnesville, O.

Heads of Grain from Different Fields

A Form for Holding a Shallow Frame when Putting in Foundation.

I have made and used for the last few years a contrivance to assist me in putting the foundation in shallow extracting-frames.

To make one, take a piece of board 1 x 4 x 19 in. for a base. Nail firmly to it, in the center, a board



1 x 5 1/4 inches, and 16 1/2 long. This should not be as wide as the frame by about 1/2 inch. Half an inch from the base nail a 3/8 in. piece 2 in. wide, 16 1/2 long, for a guide. The frame will then just slide under it. Next make a button an inch wide and 2 long, just as you would to fasten a door, and screw it on top of the upright in the center, as shown in the illustration.

To use the device, slide the frame under the guide against the upright, and turn the button so that it will be held firmly. The foundation will drop naturally into the groove, straight and true. It will not warp, nor lean to one side. Fasten it with hot wax in the ordinary way.

Morgan, Texas. T. J. FORD.
[For full sheets we can see that this form would be quite a convenience. The illustration shows only a starter.—Ed.]

Cold Weather for California.

Owing to the early frosts which killed all the late bloom, my bees did not go into the winter in very good order. I had to double up some and to feed others to pull them through. We of the northern part of the State have had very little rain, but a great deal of cold weather for this country. It was down to 14 above zero—the coldest for a great many years. Jan. 1 we had a five-inch snow followed by warm rains with the thermometer ranging from 34 to 70. The bees are now (Jan. 15) bringing in pollen from alder, which will start brood-rearing that will be of great value in building up for the main harvest, which will come here in April and May.

E. S. BARTELL.
Cottonwood, Cal.

Case's Nucleus-frame and Top-bar.

Fig. 1 shows my nucleus-frame, 5 1/2 x 8 inches, made of 3/8 x 3/8 stuff. Fig. 2 shows a top-bar 7 inches long, of 3/8 x 3/8 stuff, and manner of adjusting the same. After the top-bar is in position I turn it to the right, Fig. 3, until it is parallel with the top of the frame, and the tins hold it firmly, Fig. 4. The holder is made of very heavy tin, 3/8 wide. The ends are bent 3/8 inch from the ends, and are 3/8 inch apart—just right to hold two 3/8 pieces tight together. The tins are nailed on the edge of the top-bar, 1 1/2 in. from each end. The end of the tin on top of the top-bar is bent at right angles—the bottom end not quite so much, but so it slips under the top of the frame easily. The end that rests on top of the top-bar holds the tin firmly. When nailing on the

tins a spare top-bar should be used to fill up the tin to get the tin nailed just right. The tins may be bent at a greater or less angle to accommodate the frame-tops scant or full thickness.

I use these frames hung in the hives with 3/8 x 3/8 rabbets, just as brood-frames are used. The top-bars can be put on or taken off very quickly when once the knack is learned.

Three tins nailed on one side of the top-bar of an ordinary brood-frame hold the nucleus-frames very nicely; but as these top-bars are thicker, different-sized tins are required. They must project 3/8 inch below.

It seems to me the above arrangement is the best also for reversible frames. They could be used in ordinary hives, reversed with little trouble, and used anywhere. Four to each frame, 3/8 or 1 inch

wide, would, perhaps, be about right—Fig. 6.

Port Orange, Fla., Jan. 9.

J. B. CASE.

Why Not Breed Bees with Longer Tongues?

I note in the short time I have been interested in bees that a long-tongued bee would be of incalculable benefit to the bee-keeper. Now, we know that Burbank has done wonders in creating new kinds of fruits, flowers, etc. These fruits and flowers, as I understand it, are something the world has never known before, and yet they are produced by understanding the laws of nature with regard to interbreeding and crossing.

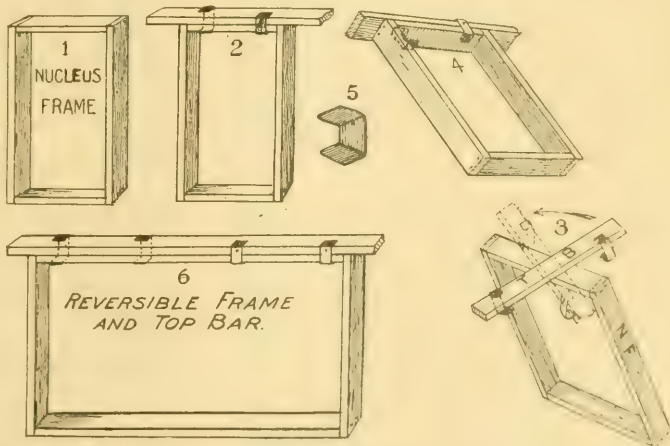
Perhaps by selection for a number of years one might be able to get something bordering on a long-tongued bee, and then, again, he might not; and at the same time the new species might at any time revert and have shorter tongues than the original stock.

Pittsburg, Pa., Jan. 24.

ARTHUR CRAMER.

[Something like ten years ago we experimented along this line considerably. We found the difficulty, however, lay right here: We could not control the male parentage of the queen. If that were possible we might practice inbreeding.

There were several queen-breeders in the coun-



try who tried to lengthen out the tongue-reach of the bees; but we found that we had to depend almost entirely on "sports." We had one queen whose bees gave a tongue-reach of .23 of an inch, while the average of black bees runs only .16 to .17 of an inch.

Later, efforts were made to construct a cage 30 ft. high and 30 ft. square in which the drones and the queens might meet in the air; but this did not

prove to be any great success. So we are practically right back where we were years ago. If you can work out any scheme we shall be glad to hear from you further.—ED.]

Profit from Forty Chickens.

My bees will have to hustle to beat my hens. Last January I had 56 hens; last June 35, with an average for the first six months of about 45. I now have 32, making an average for the year of about 40 birds. The last of November I was \$71.76 ahead of expenses, and had raised 23 pullets, which have laid 149 eggs this month. This is not taking into consideration the value of these pullets, although the cost of raising them has been charged to the hens.

Eggs from hens from Jan. 1 to date, Dec. 25, \$62.18; eggs from hens and pullets, \$63.80. Considering the value of pullets and what eggs I get this month, the profit from forty birds will be about \$100. The only care required is at night and in the morning, before and after 6, with the exception of watering them during the day, which my wife does, and only lately have I fed them more than once each day.

Brewer, Me., Dec. 25.

E. H. BISSELL.

Winter Treatment of Foul Brood.

I sent a sample of brood from one of my neighbors to Dr. E. F. Phillips, and found it to be affected with American foul brood. I do not know whether it would be best merely to clean our hives up and let them go, or to send for an inspector and get rid of the box hives entirely. In the first place, we do not know where the trouble came from, as there have been no bees sent in nor queens bought or sold. I have about 15 colonies, and my neighbor has one. They are all together in my cellar. Will the disease spread in the cellar?

Vassar, Mich., Jan. 8.

J. W. ROWLAND.

[There is not much you can do in the way of handling foul brood during midwinter except to scald out or burn out hives that are empty, and melt up all combs of which you have any doubt. If the disease during the past summer got any kind of hold upon your bees or those of your neighbor, we would advise you to melt up all the empty combs you have, as a matter of precaution, boil the frames, put in foundation, and start over again next season. While some authorities think it is not necessary to scald out or burn out the inside of the hives, we believe it is very much safer to do so. This is a recommendation of Dr. E. F. Phillips, of the Bureau of Entomology, Washington, and many of the inspectors of the country.]

Foul brood will not spread in the cellar nor during cold weather, as it is only when brood-rearing is going on that it can do so. You probably will not have any trouble again until next spring when the weather warms up and the queen begins to lay.

We are not certain; but it is our opinion that the foul-brood law of Michigan requires the transferring of all colonies in box hives. It would be well for you to call for the inspector, and we therefore advise you to write to R. L. Taylor, Lapeer, Mich.—ED.]

Chickens Eating Bees.

Regarding Mr. Scholl's article, "When Chickens are a Nuisance," p. 486, Aug. 15, when a chicken begins to eat bees, nothing will ever break it off. It does not care for any other food, and rapidly loses flesh. Old fowls rapidly follow the example after seeing the chickens eating bees; but they rarely start of their own accord. I have seen a chicken completely covered with bees trying to sting it as it was catching its meal right on the alighting-board. It just stood back, picked them all off, and started on some more. Tiny chickens never start on bees; but big chickens, fit to eat, do. Such chickens can never be caught by the usual means. Grain is no temptation to them. We either shoot them or catch them somehow, and give them to some of our neighbors who do not keep bees. To remedy this nuisance we have raised our hives about 18 inches from the ground. Since then we have had very few cases. I should not like to be without fowls in the bee-yard. They seem to keep ants and other insects down. Turkeys and ducks never eat bees; and if a small turkey swallows a bee by mistake it invariably dies in great agony, turning and twisting its neck as if all the pain were there.

STEPHEN ANTHONY.

Waitete, Amodeo Bay, Auckland, N. Z., Sept. 25.

Don't Put All Your Eggs in One Basket.

I believe there is nothing that fits in better with bee-keeping than poultry. Poultry can be attended to early in the morning and again in the evening, while bees should not be disturbed before 9 A.M., and not much later than 4 P.M.

Another argument in favor of the combination is that both bee-keeping and poultry-raising can be carried on in a small area. Besides, a man who makes a success of bee-keeping should do well at poultry-keeping, for both occupations require close attention to details. Then, too, where there is a city market near, the product of both the bee and the hen can be sold at the same time.

I don't like to disagree with such eminent men as G. M. Doolittle, the late E. W. Alexander, and W. Z. Hutchinson; but regarding the slogan, "Keep more bees," I must plead *locality*, and fall back on the old adage, "Don't put all your eggs in one basket." In fact, I have known them to fit in so well together that a deserted hen egg hatched into a fine healthy chicken over a strong colony of bees. However, I didn't give it to the bees to mother.

BLACK CHICKS STUNG WHILE WHITE ONES ARE UNHURT.

Just here let me give warning not to allow the poultry to run among the hives, as I lost a fine flock of chickens last spring, which were stung to death by the bees. One sting is fatal to a young chicken. I lost 30 out of one hatch, and, strange to say, the black ones were attacked while the white chicks were unmolested. Bees certainly draw the color line, so bee-keepers will find it to their advantage to keep white hens.

Slate River, Ont., Jan. 14. JAMES M. MUNRO.

[There has been quite a stir in the newspapers, several times, over the possibility of hatching chickens on a large scale in supers over colonies of bees; but except in hot summer weather we believe the plan is not successful. And even then, incubators are cheaper and better.—ED.]

The Trickey Method of Treating Foul Brood.

In treatment of foul brood, p. 710, 1911, 1, what is done with combs first removed?

2. At what time of day should this be done?

3. Would the result be the same if the old hive were moved in the middle of the day, then brushed at night, the new hive being first supplied with a small piece of unsealed or sealed brood?

Bradshaw, Neb., Jan. 8.

C. B. PALMER.

[1. They should be extracted if they contain honey, and melted up. Frames should be boiled before being put back in the hive with foundation.]

2. Usually in the middle of the day when bees are flying the thickest. This will avoid any disturbance, for the bees in the field will return to the new hive.

3. Not quite; because in so short a time the bees would hardly have gotten over their first disturbance.—ED.]

One-fourth of the Potatoes in Northern Michigan Frozen.

It is pretty cold here now. I believe that one-fourth, if not more, of the potatoes through Northern Michigan have been frozen during the past two weeks.

Our bees are wintering finely, however, for I can keep the temperature right during a cold winter better than I can during a warm one or one where the weather is changing all the time. The bees are so quiet that I can hold a candle almost close enough to burn them, and not even a buzz comes from them.

Pioneer, Mich., Jan. 20. ELMER HUTCHINSON.

[That certainly indicates that all conditions are normal, and that the bees should come out strong.—ED.]

Brood in Caucasian Colony in January.

Last September I introduced a Caucasian queen to a small colony. I gave them three frames of honey, and left them for the winter. We had very little rain here last year, and it has been warm and cold in succession. Yesterday, Jan. 14, the temperature was 72°. On looking into the Caucasian hive I found a patch of brood and eggs the size of my hand on both sides of a frame. I was unable to find a sign of an egg nor of any brood in my Italian colonies.

Highland, Cal.

J. R. LAFOLLETTE.

Our Homes

A. I. Root.

Therefore the ungodly shall not stand in the judgment, nor sinners in the congregation of the righteous. For the Lord knoweth the way of the righteous; but the way of the ungodly shall perish.—PSALM 1:5, 6.

With all my busy cares (at least they seem to me of enough importance to call them "cares") I try to read the dailies enough to keep pace with at least something of what is going on in the world; and I confess that many things are coming to pass that make me feel the need of some such comforting promise as the one at the head of this talk to-day. What troubles me most is that God evidently expects his chosen followers to help bring about the time when the sinner shall *not* stand in the congregation of the righteous. Letting criminals go scot free, or letting them off with a punishment not one-tenth of what they deserve, is what worries me most; and as an illustration of the tendency of the times let me quote from the *Chicago Advance* of Dec. 28:

A WIDOW'S CRY.

"My God! Why is there law, any way? There is no use of expecting any thing from the law. The guilty ones are allowed to escape."

This was the heart-broken cry of the young widow of a man murdered by an infamous gang of Chicago toughs when she heard that their execution had been postponed and might not occur at all.

The police are quoted as saying that the crime was one of the most brutal and atrocious ever committed in the city or county. The young man was a gardener, and it was necessary for him to come to the city in the early hours of the morning. It was a time when half a dozen young robbers were looking for a victim. They met him in the road with clubs and guns. He begged them to take his goods but to spare his life for the sake of his young wife and that of his baby, two months old, who needed his support and protection. The only answer was a more fiendish assault. They struck him on the head with a fence-rail, and it is reported that they even knocked out his teeth and drove a stick down his throat. Then they left him dying in a ditch and scamped away to make war on other industrious people who happened to have something which they wanted.

Fortunately their identity was discovered and they were captured. One or two of them confessed, and four of the gang were sentenced to be hanged December 22. But in spite of the fact that they so richly deserved it, and that the prevalence of high-handed and bloody crime called for a prompt and effective enforcement of law which would produce more respect for it among the lawless, and more confidence in it among the law-abiding, a movement was made upon the governor of the State to prevent the execution, and it succeeded!

If this movement had been made only by the paid attorneys in the case and the relatives of the murderers it could be passed over; but it had the backing of such influential people as Dr. Hirsch, Miss Jane Addams, Jenkin Lloyd Jones, Professor Charles R. Henderson, and others. Some of these interferers with the mandate of the court seemed to have a rather hazy reason for their meddling, except that they did not want a hanging. As Roosevelt once said in a Chicago address, some people do not feel the pain of the murderer's victim, but do feel intensely the pain which the murderer ought to suffer for his crime. Perhaps this explains in part the action of some of these individuals for blocking the enforcement of law.

But others of the interferers were more explicit. Professor Henderson's reasons, as given by the daily press, include the declaration that "capital punishment is not necessary for any rational, social end." But the great commonwealth of Illinois declares on its statute-books that it is necessary; and it is the part of wisdom to pay more attention to the law than to a professor's theories.

The professor also says that capital punishment tends to increase rather than diminish crime. But the statistics for the crime of murder show that there has been a frightful increase of murder in this country since the decrease in hangings set in. From the year 1887 to 1908, as shown by the statistics of the *Chicago Tribune*, which have commanded wide attention, the murders in this country increased from 1266 to 9000. One year there were more than 10,000. In fifteen years the total number was 133,192, while during the whole four years of our Civil War the number on the Union side who were killed in battle was only 101,000. That is to say, fifteen years of murder in this country cost more lives than the battles to save the Union cost. We are fighting tuberculosis and a lot of other germs; but the worst germ in this country is the murder germ. Once we cured it with the rope; now we are treating it with sugar-coated sentimentality, to university theories, and social-settlement softness. During the last two years there have been 653 homicides in Cook County—Chicago's county—and not a single hanging; and of these homicides more than 300 were "cold-blooded murders." (This information was received direct from the sheriff's office.) In five years there have been no executions in Chicago, the last having occurred December 13, 1906. In Louisville, Ky., a State where the public had the impression that murderers are hanged, there were 47 murders during the year which ended August 1 last, and not a single legal execution.

Last year the total number of homicides in the country was 8975—an increase of nearly 800 as compared with the previous year, and yet there was a decrease of executions. Only 104 persons were put to death by law. In a word, while murder has been increasing so frightfully as to be but little less destructive than war, hanging is nearly played out. In Chicago, where the execution of these brutal murderers was prevented by alleged philanthropists, murder is a continual occurrence, and executions need no longer be feared by the infamous scoundrels who knock early risers on the head or shoot down women in cold blood because the women get excited when a revolver is thrust in their faces and they are ordered to hold up their hands. "The most significant feature of last year's figures for murder," says the *Chicago Tribune's* report, "is the increase of murders committed by thugs, thieves, burglars, and hold-up men." It is this kind of murder which the interferers with law have now made more safe in Chicago. The man who wrote the magazine article entitled "Encouraging Murder" could find great encouragement for another article in this recent performance.

Dr. Andrew White, in his notable discussion of the subject, said, "The murder rate is from ten to twenty times greater in the United States than in Great Britain and other northwestern European countries. In London, with its great population, during the year 1909 there were only 19 cases of murder. Of the murderers, five committed suicide (executed themselves), four were executed, and four were found insane. Compare these figures with Chicago's 300 'cold-blooded murders,' and not an execution! And yet Professor Henderson is quoted as arguing that England has reduced crimes of violence by a reduction of capital punishment. The real fact is that England hangs murderers, and as a result she does not have many to hang.

Many of the readers of GLEANINGS are interested more or less in market-gardening, and know what it is to get up early and sit up late to raise stuff, fighting frost and flood and drouth. Now just think or having the crop grown, and on the way to market, and then being beset by a crowd of toughs from saloons, and being murdered in cold blood, as mentioned above. Although the *Advance* did not touch on the matter I think they will agree with me that this crowd was the direct outcome and *output* of the saloon business. What does Christianity mean, and what does the expression "the land of

the free and the home of the brave" mean if this thing is allowed to go on?

Once more, the McNamara brothers have finally been obliged to confess, and may God be praised for so much; but what would have happened if they had not confessed? When first arrested the elder one said openly he would get free, and gave as a reason that a predecessor in the same line got off because his friends raised \$50,000 to get him off, but that *he* (McNamara) was so much higher up (higher up in what?) his friends would readily raise \$200,000, and they did raise *almost* that amount.

Now, dear friends, please do not rush to the conclusion that I am opposed to organized labor, for in truth I am glad to see people stand together to resist injustice and oppression; but what I vehemently object to is defiance of law, or taking the law into their own hands when it seems slow and ineffective. It is the disregard of law that threatens the ruin of our country.

Just recently the Baptist brotherhood of Cleveland, O., have been trying to have the mayor and chief of the police enforce the law against open saloons on Sunday. These officials, while admitting the law was plain and clear, refused to enforce it, for no other reason, so far as I could gather, than that "the people do not want the law enforced."

At Newark, O., about a year ago, the saloon-keepers did not want the law enforced, and put to death an officer of the law who was trying to enforce it. Just recently the county has voted wet, giving as an excuse that the law could not, or, rather, perhaps *would* not, be enforced if they continued to vote it dry.* How could they expect any temperance law to be enforced when they continued to put into office men who are not in sympathy with either temperance or Christianity? May the Lord be praised for the good and brave men who are here and there getting into office and exposing the graft and bribery and fraud that seem to be turning up almost everywhere. Well, after much pains and time and trouble we do succeed in getting the guilty ones "red handed," for God's sake and for the sake of the honest, faithful, hard workers, let us put aside our foolish scruples and weaknesses, and enforce the law to its *very letter*, until the law really is a "terror to evil doers."

*I clip the following from the Cleveland *Plain Dealer*: "Newark business men are dissatisfied with conditions in this city under the Rose law, and are predicting almost a solid front to change the speakeasy, blind tiger, and kitchen-bar into the regulated saloon." Will some one point out to us where there is, ever was, or ever will be a "regulated saloon"?

POULTRY DEPARTMENT

A. I. ROOT

ANOTHER "GREAT DISCOVERY" FOR THE BENEFIT OF POULTRYDOM.

I am sure our good friend of the *Reliable* will be pleased and entertained by what I have to tell you, even if no one else will. Just listen to what I have run on to.

It is no new thing to have a hen that lays eggs while she cares for a brood of chickens (say three or four weeks old), for, in fact, my strain of White Leghorns was built up from such a mother, as you may remember; but I propose to have a strain of fowls that will go away ahead of this. You will bear in mind that I am trying to get a duck from every one of the three eggs I get daily from my three ducks. Well, my Cyphers incubator holds only about 50 eggs; and as the incubator is needed about 30 days for each hatch, the duck eggs, to use them all, needs a sitting hen (to help out) about every week; therefore I have been waiting anxiously for a sitting hen among my Leghorns, Buttercups, and crosses of the above two breeds. About three weeks ago I found a half-blood hen on the nest while gathering the eggs, and she was still on at dusk. When I gently touched her she showed such determined fight I was almost scared out. She acted as if she were really going to eat me up, in little bits at a time. Now don't forget this, for it is a most important "link" in my "great discovery." I carried her to an empty brooder-house and gave her the orthodox thirteen duck eggs. She stuck to her job

very well, and when the usual seven days were "accomplished" I had another fight with her to permit me to test the eggs. It seems I had never been able to catch her taking refreshment, because she was so exceedingly wary. Now listen, for we are coming to the climax. Instead of thirteen eggs I found *sixteen*. Bear in mind, no other fowl was in the closed building, and, besides, the three extra eggs were of a brownish tint, entirely unlike the duck eggs. (By the way, isn't it funny that, while both breeds lay a white egg, a cross between the two should lay a brown one?) Well, on testing the eggs one of the brown ones showed it was laid at least five days before the testing (a chicken is now breaking its way out of that egg while I write*); the other two had made so little progress we used them for the table. Do you see the point? This hen had really laid three good eggs after she had commenced to sit, and after she had commenced, also, *in real good earnest*, as I happen to know, and there is hardly a question but that a strain of fowls may be developed that will lay eggs, more or less, while they are spending their time sitting

*After finishing the above I went down and took a look at the incubator, and found a big strong chicken clear out of the shell, and down in the nursery. I first found the egg pipped at daylight this morning; and before noon the chick was out in good shape. This is the way it works when the hen gives the egg its start and the incubator does the finishing up.

—say lay enough eggs to pay for the feed they require. Let me digress a little.

Some time ago I thought I had discovered a way of getting more pullets and fewer males by crossing the Leghorns and Buttercups. If the mothers were all white, the most of the chicks would take after their white mothers, because the Leghorns are a much older and better-fixed type than the new Buttercups. Well, I still think there is something in it, and now I have about 40 pullets of this cross, and these forty are just now giving me twice as many eggs as the remaining forty. Now, in this flock of forty there are almost all colors imaginable. There are at least a full dozen hens as black as any Minorca, and there are (*in looks*) blue Andalusians, Brown Leghorns, and, in fact, fair types of a dozen different breeds. It is one of these crosses that lay eggs while she is sitting; and if some of you experts would take the pains to develop this trait that you do in "breeding to a feather," for instance, you would be doing more real good for coming generations. My theory is that crossing an old and established breed in this way not only tends to throw out a multitude of sports in color, but fowls that have queer and eccentric ways and habits, as I have outlined above.

"NEW DISCOVERIES," ETC.

We are pleased to note that at least one poultry journal is taking note of our poultry department. See the following, which we clip from the (great big) *Reliable Poultry Journal* for January. It really is a beautiful large monthly, and contains a vast deal of information.

We are kept busy these days reading about the wonderful new "discoveries" in poultrydom. A writer in GLEANINGS has "discovered" that all hens lay "two eggs and skip a day, two more and skip another day, laying the eggs 30 minutes later each day." Another writer has "discovered" the best and cheapest food for laying hens. He secures from his local butcher the "lungs and lights of fat animals, which are placed in an out-building and there left undisturbed for a few days. Flies of many kinds are attracted, and deposit their eggs." When hatched the worms proceed to devour the meat, and to get fat. When thoroughly ripe I mix the mass with bran, which removes much of its offensive nature, and allows it to be handled easily." These "discoveries" are given and favorably commented upon by earnest men! And it was found in a publication which takes pride in its claim as a truthful and highly decent journal.

Our readers will notice the above are not strict quotations, neither did the editor say my "discoveries" are usually given in a vein of pleasantry; but we can forgive it, even with his implied sarcasm, for he probably felt a little sore over my criticism in regard to advertising in the reading-pages—see p. 673, Nov. 1.

In regard to the larvæ of house-flies and other insects as food for poultry, there has been some discussion. As this is the principal incentive to chickens scratching over manure-piles and around stables, I can hardly think rearing larvæ to supply the meat ration objectionable. Miner's domestic poultry-book, published 60 years ago, described and urged it very strongly. And

now I am sure I shall please the "Reliable" man still more by giving the world another "great discovery."

HOW TO MAKE INDIAN RUNNER DUCKS LAY LARGE EGGS EVERY DAY IN THE YEAR.

It is very simple and easy. Give them a big panful of corn at night, and let them help themselves to it all night long and until they have all laid an egg in the morning. Ours usually have their eggs all laid by daylight, and then they are let out into the canal, where they forage until they come home at night for their pan of corn once more. This is a remedy, too, for small and medium-sized eggs. "He that soweth sparingly shall reap sparingly" applies to getting ducks' eggs as well as to almost every thing else. If your ducks are laying small eggs a part of the time it is just because you are not giving them the needed good strong food to get up a nice "corn-fed" egg every day. The new ducks are really capable of doing wonderful work in the line of egg-laying, but to perform these great feats they must have good material in great plenty. The reason why I lay so much stress on corn is that ours seem to prefer it to any thing else. Of course, they get an abundant supply of green stuff and animal food along the canal, where they spend the greater part of the time during daylight. The following, in regard to these ducks, I clip from the *Jacksonville Times Union*:

Keep a large low dish of shell, grit, and charcoal (one of each) before them all the time. You will be surprised at the amount they will eat. Grain is not a good feed for ducks as a steady diet, but we give ours some whole corn or wheat once in a while, and they seem to enjoy it for a change. Whether it is necessary or not, we are undecided. If any thing, we would consider it unnecessary; but it makes a quick way to feed, and we generally give it to them on Sunday nights, as that is our lazy day.

There is a certain prejudice among some people against duck eggs, probably because some ducks are fed on foul food; but I can assure you that, if the ducks are fed as I advise, the eggs will be as sweet and wholesome as hen eggs. This is especially true of Indian Runner eggs. Their eggs should be perfectly white, and ducks laying green-tinted eggs should not be used as breeders. We do not have any trouble on this score now, as ours all lay white eggs. One of our local breeders finding that the grocer who was buying his eggs did not want duck eggs started selling to another grocer, and put all of his small duck eggs right in the crate with his chicken eggs, and no one was the wiser. He only took the pains not to put in any eggs that were large enough to arouse suspicion, which only proves that, if people only knew, they would demand duck eggs in preference to hen fruit. It is a perfectly harmless fraud, and one that benefits the buyer.

As the mucky season is coming on, and we all know that ducks are apt to lay their eggs around anywhere, we are trying with fair success to teach ours to lay in nests. Try it for yourself; and even if only half of them lay in the nests it makes just that many less eggs to wash.

UNEEDA BISCUIT AND THE CHICKEN BUSINESS.

Now, you need not jump to the conclusion that I am going to advise these crackers as a cheap chicken feed—nothing of the kind, although I think they might be just the thing, and perhaps just the *best* thing crumbled in milk, say, for "day-old chicks," and perhaps for the first week; but what I have

in mind is this: We have always carried our eggs to market in egg-boxes holding a dozen each, and costing about half a cent each box (in 1000 lots), and, finally, our grocer sent for a lot and furnished them free to his regular customers. Well, he got out a few days ago, and I tried for a while carrying my eggs in a basket in the good old-fashioned way; but I don't like it. I object to having my "eggs all in one basket" (may be you have heard wise advice along this line before). Well, I object to the repeated counting it necessitates, to say nothing of a possibility of broken eggs, etc. Well, just at this crisis Mrs. Root brought me a pasteboard box she had just emptied, and said, "Here! why won't this hold a dozen eggs?" It held them exactly. As they come apart pretty easily you will need to drive the smallest size of tinned tacks through the pasteboard at each end, and clinch the tack down by holding the box on the back of an ax or hatchet. By the way, I have always been pleased to see the full-page advertisement in our journal. These crackers have been a real boon to humanity—always the same thing, for sale everywhere; and any hungry mortal who can scrape up a nickel can always have a most wholesome and appetizing lunch on a minute's notice. Mrs. Root and I always prefer them to any thing else to go with the nice fresh Florida oysters that are in the market here every day in the year.

Special Notices

By A. I. ROOT

SEEDS, PLANTS, ETC., FOR FLORIDA.

Conditions, climate, etc., are so different down here from the North, that it is often advisable to submit your wants to seedsmen who live here and know what is wanted and what is best. Crenshaw Bros. Seed Co., of Tampa, Fla., issue a very neat and pretty catalog of seeds, poultry supplies, etc., gotten up specially for this region, which contains suggestions and advice to any one thinking of coming here.

THAT "ADDRESSED POSTAL CARD."

If you want a prompt answer from me, you must enclose an *addressed* postal card. One good brother sends just a plain postal, and his name at the end of his letter was such a scrawl I just had to give it up. I might paste it on the card, but I have no time for such fussing. It isn't the *one-cent card* I want—bless you, no; it is that I want you to do the work of addressing. I don't want *addressed envelopes* either. I lose them or get the wrong letter in to them, and a postal holds all I have time to say to each one of you. There is all the time before me a lot of unanswered letters, many of which, I think, I ought to answer, but I simply can not, and there is about a "wheelbarrowful" of papers, magazines, books, etc., that I am trying to get time to glance over. I appreciate your many kind words, and may God bless you all; but I really can not stand being kept indoors so much.

Your old friend,

A. I. ROOT.

THE CORNING EGG-FARM BOOK, BY CORNING HIMSELF.

The above is the title of a large beautiful book; and that is not all, for it must, in my opinion, prove a most valuable addition to the poultry literature of the world. As I have recently visited and written up briefly the Corning establishment, and frequently referred to it, it will not be necessary to go over

it again here only to say it is, perhaps, almost the first really successful attempt to keep as many as 1500 laying hens all in one building, and, we might almost say, in one room. The book contains over 200 pages of beautiful print on the very best of paper, and the engravings of every thing described are masterpieces of art. I wonder if the authors of some of the dollar poultry-books sent out with paper covers and poor print, on *poor paper*, will not feel ashamed when they come to see *this* dollar book. Every thing is pictured that they use in the way of implements and building, and there are even long folded *maps* of their colony houses, and in the back part are diagrams of all the buildings on their premises. I am glad to note that they have tested, extensively, mustard for laying hens, and it not only seems to benefit the health of the fowls, but the eggs have even better fertility where a reasonable amount of ground mustard is incorporated with their food. They use what is called mustard bran, a by-product from the mustard factories, costing only about one-fourth of the regular product. Red pepper tried side by side with the mustard gave no such result. It did not increase the laying, but seemed detrimental to the health of the fowls. Another important point made in the book is that hard-coal ashes are an excellent substitute for charcoal, lime, and grit. Where the fowls have access to the ashes they seem to care very little for their regular grit and shells. If you have a touch of the poultry fever you can not afford to be without this new and up-to-date book. If our company have not already done so, I hope they will soon make arrangements to offer it at a low figure clubbed with GLEANINGS.

After so many kind words I want to mention one or two possible objections. First, the Corning book pronounces the "baby-chick business" cruel, and advises against it. Surely they are not posted in regard to the magnitude of the business in certain parts of Ohio, and also of the number of satisfied customers who continue, year after year, to buy chicks instead of eggs. I would not mention my other criticism, were it not that I feel I must do so to be absolutely fair. It is this: The book all together is a splendid advertisement of their (comparatively recent) business of selling eggs for hatching, as well as fowls for breeding. Do you suggest to me right here that the same might be said of the A B C of Bee Culture? You are right—at least to a certain extent, and the same might be said of a great part of our most valuable rural and other books. An important item comes in here, however, and I think I can make it plain if you will listen. The Corning people first started to produce sterile eggs for food consumption only, and the first book put out by our good friends of the *Farm Journal* so stated it. So long as this was true, there could be no cause for exaggeration or for dwelling on the brightest side of the story. Well, on one page, in the middle of this beautiful book, we are told that, during the year 1910, they returned money for more than 50,000 eggs for hatching. I do not know what they get for eggs for hatching. If but little more than for those for table use, the point I am making amounts to little or nothing. If they get (like Kellerstrass), a dollar apiece (or more) for choice eggs, I feel troubled about recommending this beautiful book. Yes, I might as well own up that I feel troubled when I see some boy or girl send off for eggs that cost anywhere between a dollar a dozen or a dollar apiece. When these high-priced chickens don't lay any more eggs than those they had already, I feel *more* troubled. The poultry journals keep telling their readers to be sure to "buy the best" to start with. A woman went into a seed-store and found they had seeds of two qualities—one grade much higher in price. Looking sharply into the seedsman's eyes she said, "If I pay for the best, am I *sure* to get it?" In conclusion, I believe the Cornings will give you full value for every thing they receive, just as they have in sending out this beautiful and valuable book.

The Northern Michigan Bee-keepers' Association will hold its next annual meeting at Traverse City, March 13 and 14, 1912. Headquarters will be at the Whiting Hotel, where special rates have been secured; and in its parlor on the second floor the meetings will be held. A good program will be provided, and we hope to see many new faces as well as the old.

East Jordan, Mich.

IRA D. BARTLETT, Sec.

Gleanings in Bee Culture

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Editorial

Now is the time to write your senators and representative, urging their support to parcels post. Do it *now*. Parcels post will mean much to the farmer, and to all, in fact, except, perhaps, the proprietors of small stores and the big express companies.

SEND postal-card reports on how the bees are wintering. As this has a direct bearing on the price of honey, we hope our friends will respond at once. Confine your reports to two or three sentences on a postal card. Give probable winter losses, and state whether the bees are in the cellar or out. If outdoors, state whether packed or not.

WHEN TO SET BEES OUT OF THE CELLAR.

DR. E. F. PHILLIPS, of the Bureau of Entomology, offers the excellent suggestion that beekeepers consult the Weather Bureau before setting their bees out of the cellar. It is desirable to select a day in advance that will warm up along about nine or ten o'clock, so the bees can fly. It is never advisable to wait until the air is warm and balmy, and then set the bees out, because they will fly out immediately in confusion. The weaker colonies will combine with the flight of the stronger, thus weakening their own forces, and giving the stronger stock bees that they do not need.

The *best* time to set bees out is the night *before* the selected day, or in the morning of that day when the atmosphere is cool or chilly. Usually we prefer to set them out the night before, then they will quiet down before morning. As it warms up gradually they come out slowly—not in a great rush.

As a general thing it is not best to set the bees out in two lots on successive days, because the earlier lot is quite liable to rob the ones just set out.

THE OHIO AND INDIANA STATE BEEKEEPERS' CONVENTION.

THE Ohio meeting was held on the 21st, at Springfield, and Indiana on the 22d, at Indianapolis. We managed to take both in. The attendance at both meetings was somewhat small, doubtless owing to the blizzard of bad weather at the time. Dr. E. F. Phillips, of the Bureau of Entomology, gave an illustrated address on bee diseases at both conventions. He showed by colored slides the difference between the larvæ af-

fected with American foul brood and those affected with the European disease. He then illustrated the successive steps in the treatment by shaking or brushing on starters of foundation.

He made the statement that the inspection work, both in Ohio and Indiana, was accomplishing good results. Indeed, Indiana especially, he said, had reduced the amount of disease through its scheme of inspection to a third of what it had been before the law went into effect. He said that there was a similar reduction in the amount of disease in other States where systematic inspection work had been carried on. For example, in New York, when the inspection law went into effect 23 per cent of the colonies examined were affected. This percentage, when inspection was well under way, was reduced to about two or three per cent. While there has been a slight increase of late, the inspectors are holding the disease well in check. Dr. Phillips made it very clear that inspection would never totally eradicate disease, and the most we can do is to hold it under control.

State Entomologist Prof. Shaw, chief foul-brood inspector for Ohio, gave a report showing that foul brood was found in practically all the territory visited by the inspectors. While he had not been able to cover the entire State as yet, it is evident that the inspectors were improving the conditions very materially. Mr. Baldwin, State Entomologist, and chief foul-brood inspector of Indiana, showed that good progress was being made.

The general discussions at both conventions revolved around wintering, and it was natural that it should, for fears were expressed on the part of beekeepers present at each of the conventions that there would be heavy losses during the very severe winter we have just had and are still having; but from general reports that have been brought in, it is apparent that losses will be mostly along about the latitude of Springfield, Columbus, and Indianapolis. In the northern parts of both States the losses would not be as heavy, because the bees were better protected. In the southern parts the winter mortality would be less severe for an entirely different reason—because the climates are milder, and the ordinary single walls of the hives would be sufficient protection.

HOW THE BEES HAVE WINTERED.

It is a little early to get reports; but those we have received indicate that our most northern States and Canada probably will not have severe losses—particularly among those who practice cellar wintering or pack in double-walled hives outdoors; but the bee-keeper, so called, who has been in the habit of letting his bees "work for nothing and board themselves" will probably lose very heavily, even if he does not lose every bee; for the severe winter we have had has had, in the more northern localities, a disastrous effect on colonies not housed in winter repositories or properly protected in double-walled hives or winter cases. The greatest loss will occur, probably, about the dividing line between territory where it is necessary to use protection and territory where no protection is ordinarily needed. That means that losses will be most severe in latitude 40. South of that line, say Southern Kentucky and Tennessee, the mortality will be less severe because of the shorter winter season and the milder winter.

In most cases it is clearly shown that it is an advantage in the Northern States, at least, to put all colonies in good cellars or double-walled hives; yet, notwithstanding, a couple of men at the Springfield convention reported that they put their colonies in single-walled hives, and they were wintering splendidly, while one of their more careful neighbors was losing his bees in double-walled packed hives. But it is the exception that proves the rule.

SOME OBSERVATIONS ON WINTERING AT MEDINA.

On the 13th and 14th of the past month the severe weather began to moderate, and on the 15th and 16th we took a look through the bees at our several outyards and at the home yard. In the Harrington yard there was not a single colony lost, notwithstanding we had more reason to fear that yard than any of the others. The bees were nicely put up and well housed; but the individual colonies, with some few exceptions, were weak.

At the Clark yard there was a loss of only two colonies out of some eighty odd. In one case the super cover had got tipped back so that cold air blew in right over the bees, and actually chilled them to death. In the other case the cluster got into an open feeder with syrup, and half of the bees were drowned. The reduced force was not able to stand the cold.

At the home yard, which had been used for filling orders for queens and bees in the fall, we found a little different story. We first commenced on two rows at the north end of the apiary, comprising some colonies that had been made up late. Indeed, they were aggregations of little clusters from several hives that had been united. The bees, however, were well housed; but their entrances were facing north. Something like seven or eight of these colonies were dead outright, and the others were weak. Where they were dead it was noticed that snow had blown over the entrances, and that moisture

from the clusters had caused the snow to melt and freeze, thus hermetically sealing the entrances. In some other cases dead bees had clogged the entrance, their carcasses being jammed in tight so there was no chance for escape. In most cases, where the entrances were clogged or sealed tight, the bees were either dead or in bad shape. In either case it was apparent that the clusters had scattered in order to get air, had died, and dropped down on the bottom board. Late-made-up colonies do not, as a rule, winter well because they lack the stability of an old colony that has the real colony spirit.

When we went through these two rows we were somewhat alarmed; but on going through some of the other colonies, "the old stagers," that had gone through the season, and whose life had not been sapped by pound orders, we found conditions much better; but still the bees at the home yard were not in nearly as good shape as those at the two outyards already mentioned. The reason for this is, doubtless, owing to the late disturbance in filling orders and feeding and doubling up to make up. The basswood apiary was in about the same condition as the home yard, and that, too, had been used to some extent for filling orders.

The Brunswick apiary was in the worst condition of all. This yard consisted of late-made-up colonies, and all were supplied with the so-called golden Italian queens. The hives protected by winter cases were placed on a side hill facing southeast; but the location was evidently bad because of the fact that the wind blew over the hill in the rear, and then apparently meeting some counter-current was deflected into the entrances of the hives. How do we *know* this? In many of the colonies we found snow that had blown in at the entrances reaching clear up under the frames. The entrances were closed, and the mass of snow below the cluster seemed to be too much for the bees, for a third of them were actually dead, and another third will probably "throw up the sponge" within two or three weeks. The golden Italians hatched out in the fall; and as they were young bees we naturally supposed they would be able to stand more cold than the older leather-colored Italians; but as a matter of fact the exact reverse was true. Our Mr. Spafford reported that the extra yellow bees seemed to be the first to die. The leather-colored bees, though much older, were standing the cold much better. This only confirms the experience and reports of former years, that these extra goldens are not good for outdoor wintering. It is very seldom that we have been able to winter them; and why they should die before the darker Italians is not easily explained, unless it is because their hardiness has had to give place to color.

THE IMPORTANCE OF WINDBREAKS; THE RIGHT AND WRONG KIND; SOME FREAKS OF THE WIND.

The question of wind exposure to an apiary is a matter of no little importance.

Sometimes the windbreak will check the force of a winter's blast on one, two, or three rows, but deflect it on some other rows where it does a lot of damage. For example, our Harrington yard this year was moved about a thousand feet to the south and east of its previous location where the winter losses in previous years were too high. The old spot had a bad wind exposure from cleared land on all sides. This year the bees of this yard were placed in the center of an old orchard with numerous brush heaps around the outside of the apiary. They looked unsightly, but "handsome is that handsome does." We are beginning to believe that a solid windbreak, as a high board fence, is not as good as one through which the air may *sift* and *spend* its force. Notice how the railroad companies are now using open fences rather than solid ones to keep snow off their tracks. When a winter blast strikes a *solid* windbreak like a tight board fence the force is liable to *glance* and strike some other colony or colonies, doing considerable damage. At our north yard, for example, there is one row that seemed this year to suffer more than the others. This has been observed for several seasons. At our home apiary we have discovered certain locations where colonies, no matter what the strain or strength, seemed to suffer more than others. At the Brunswick yard, owing to the conflicting air currents, it was evident that the location as a whole was very bad; for how else could snow be driven into the entrances of many of the hives so that it would be two or three inches deep on the bottom of some of them? These hives had contracted entrances, $\frac{3}{8} \times 8$.

CAN CLUSTERS MOVE DURING MIDWINTER?

Another interesting thing we observed was that, even during the very severe protracted zero weather, clusters of bees would move from one part of the hive to the other. By lifting the chaff tray we could easily tell the location of a cluster by placing the hand on the super cover. In one particular case one cluster of bees during the early part of the zero spell moved from the front of the hive to the rear, then over to one corner. An examination on the 16th of February showed that these bees, after all their shifting about, were in fine shape. This would seem to indicate that the old notion, that a cluster can not move during zero weather, is a mistake. Apparently the bees have the power of increasing their temperature so that they can move to "pastures new." On the other hand, we have found clusters stone dead with all their stores eaten away from around them, yet with plenty of stores in the hive. Why these clusters did not move over to pastures new we can not say. Perhaps you may ask how we knew the clusters moved. This we determined by the changing of the temperature as indicated by the thermometer. For example, a thermometer was put in the *back end* of one of the hives while the cluster was in the extreme front. The internal temperature of this hive varied anywhere from 20 above zero to 75, while the outside temperature was down to zero

and below. When the mercury went up to 75 we thought there must be some mistake, because it was 7 below zero outside. We came back late in the afternoon, and the mercury outside had dropped down to 10 below; but the thermometer showed 75 as in the morning. We were curious to know *why* this was so, and finally lifted the cover off the super. The bulb of the thermometer had been right down in the center of the cluster. Mind you, this temperature of 75 was taken without disturbing the cluster in the least. This goes to show why that ball of bees could move from one part of the hive to the other. It had *vitality*. Now, then, the cluster that remained stationary, and starved, yet had stores within one or two inches, must have lacked vitality or something.

Some years ago Mr. G. M. Doolittle, if we are correct, reported that the internal temperature of a cluster of bees one winter was up to 98. We have never found it to be above 75. The apparent discrepancy may be explained by the fact that Mr. Doolittle's bees had probably started brood-rearing.

SIZE OF ENTRANCES.

There has been considerable discussion on this point. It is our opinion that the matter of locality and wind exposure will have to decide this very largely; but in most localities the consensus of opinion favors a contracted entrance $\frac{3}{8} \times 8$. A 1×2 inch is liable to let in field mice, and these pests play havoc with wintering colonies. In two or three cases this winter we observed that, where the entrances were wide open, $\frac{1}{2}$ by the width of the hive, the bees were much worse for the experience. We have observed the same thing year in and year out, and yet we have no quarrel with one who says he can get better results with a very large entrance. His locality probably makes this right for him.

SEALED COVERS VERSUS ABSORBENTS.

We are inclined to the opinion that a cover board of thin wood laid on the top of the brood nest, without sealing, is better than where it is sealed down tight. While this may be a concession to the upward-absorbing-packing fellows, yet we are always open to conviction, and we find that covers not sealed down allow a certain amount of moisture to escape through the cracks, and yet not enough to make the packing above wet or damp. This matter of absorbents versus sealed covers is largely one of locality. In very cold climates, if the opinion of good beekeepers is of any value, we would say, use the absorbent plan; but the packing material should be light and loose, so the moisture can escape, but not enough of it so that the heat may get away too.

ENTRANCES FACING NORTH.

We noticed in most cases where the colonies faced the north that they were not in quite as good condition as those facing east or south. A few were dead outright. While we do not think the north exposure was *entirely* responsible for this, it contributed to some extent to the result.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

B. MICKWITZ, Borga, Finland, has sent me samples of furniture nails with porcelain heads which he has used with satisfaction as spacers for brood-frames. I have also used them, and they do good work, but not so good as the heavy shingle nails.

DR. WILEY comes out on top—given a clean bill of health and a free hand. Hoop-de-dooden-doo. Good for Dr. Wiley! [Hold on a little. Dr. Wiley's enemies are more active than ever. Unless the press of the country continues to stand back of him they may get him yet.—Ed.]

CHICAGO papers report an Orpington cockerel at the poultry show, Dec. 15, valued at more than \$2000. A rooster hardly averages the value of a queen-bee. Yet some will maintain their equilibrium at mention of \$2000 for a rooster and throw a fit at mention of \$200 for a queen.

TWO MAIN divisions of Italian bees, leather-colored and five-banded, page 90. That may be all right now. Before there were any five-banded we had leather-colored and light Italians. [As we have before pointed out, the name "five banders" is a misnomer in most cases. We do not believe there are a dozen colonies showing *all* five banders in all the United States.—Ed.]

THE EDITOR of GLEANINGS gives me a lot of trouble, and now D. M. Macdonald is helping him to make life a burden for me. That Scotchman quotes me as saying "Pure Italians don't need even the paper to keep them from fighting" (when one colony is placed over another to be united), and says, *British B. J.*, 514, "Here there would be a battle royal." I don't know of my own knowledge whether Italians would fight or not; but I took your word for it, Mr. Editor, and now you fight it out with Mac and let me out. [Most Italian stock does not require any paper nor any special precaution in uniting—at least that is our experience here at Medina. But there are Italians and Italians. Some of the so-called five-banded bees, and bees from Southern Italy, are very cross. Italians from Northern Italy and Southern Switzerland are usually very gentle.—Ed.]

AN AUTOMOBILE is a thing I don't own, and have no notion of getting; yet I'm looking with eager interest for the automobile number of GLEANINGS. So long as I had an out-apiary the thought of the danger from having a horse or horses at the out-apiary or with a load of bees on the road was a constant nightmare, and I could well have paid a good price for a horseless conveyance to be rid of that nightmare. Especially do we want to know the cost for upkeep as compared with horses. By the way, I wonder how many bee-keepers pronounce "automobile" correctly. In this locality

it's generally pronounced au-to-mó-bile. The dictionary says au-to-mó-bile is the adjective and au-to-mo-bilé the noun. An au-to-mó-bile vehicle should be called an au-to-mo-bilé. Or, perhaps, better still, some shorter name. [The dictionary, so far as it relates to automobiles, is behind the times, or, rather, this is a case where an industry has made such rapid advances in nomenclature that a dictionary four or five years old is necessarily out of date. Take the word "garage." It is pronounced in a dozen different ways; but the strong tendency is to Anglicize all such French words. For instance, "automobile," the noun or the adjective, is pronounced *automob'l*, not *automobeel*. "Garage" is pronounced exactly like "carriage" except the first letter, for the simple reason that we English-speaking people could not, even if we tried, give the French pronunciation. After all, the general present-day usage should be the guide rather than a dictionary that attempts to reflect such usage.—Ed.]

MR. EDITOR, I recant, I retract, I back down, I take it all back. From your private letter I learn there is much honey put upon the market whose imperfections at top and bottom of sections are not concealed when three-inch glass is used. For such honey two-inch glass is better. (Please pass the humble-pie.) Still, you might allow me to continue three-inch glass for the sort of sections that grow "in this locality." [We see no reason why you should recant and take it all back. Personally you like the looks of your honey behind three-inch glass because it is of high enough standard so that it looks well; but a great deal of the honey thrown on the market is enough below grade so that it looks better behind a two-inch glass. Does this suggest deception? Not if we understand conditions properly. A section out of the case below No. 1 grade looks far better than the same section put behind a three-inch glass in a shipping-case with other sections of the same filling. When the below-grade section is out of the case its defects do not seem to be quite so apparent, because it is easy to see that it is all filled; but when it is put behind a three-inch glass it looks just lean enough to make it appear under weight. When placed behind a two-inch glass it looks much better—that is to say, the buyer will size it up at its real value.]

But your honey is above No. 1 grade and better—at least what we saw in the New York market was some of the prettiest comb honey we had ever seen. It would look well, even behind four-inch glass. So we see no reason why you should recant unless your original statement applied to all honey put up indiscriminately by producers generally.—Ed.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

The old question as to whether we should shovel snow away from the entrances of hives or not will be puzzling many at present. We cleared snow from in front of some of the hives, and since this terrific cold spell has come we have been wishing we had not done so. A few days ago I went to the Cashel yard intending to clear the entrances; but on lifting up the packing from a number of colonies, and seeing them so quiet, I decided to leave them alone. Needless to say, the decision has not been regretted. As long as the entrances are clear of ice, I believe that good rather than harm will result by leaving the snow around the hives during extremely cold weather.



Mr. Davison, of Unionville, a very successful beekeeper in this locality, has a contrivance that fits over the entrance something like a vestibule, which prevents clogging of the entrance, and at the same time insures an air space around the hive, and will allow the bees to carry out their dead if they wish. Then if the snow does not *drift* over the fronts he *piles* it there doing cold weather. Last week I visited the yard, and the hives look like snow mounds more than any thing else. He is one of our best winterers, and for a year like this the plan is all right. Even without the snow, the contrivance is an excellent feature in that it prevents the wind going directly into the hive, and also keeps the sun from enticing out the bees during cold spring days when they are better inside.



On page 90, Feb. 1, I notice that the Board of Supervisors of Imperial Co., Cal., has passed an ordinance forbidding bringing any bees into the county. This is certainly drastic enough. I wonder whether the law would stand the test of a higher court. If a law of that kind were passed for the purpose of keeping out *diseased* bees, well and good; but from this distance, as the law is worded in GLEANINGS, it looks like a very arbitrary measure. Suppose a man were moving into the county for good reasons, and with no intentions of going into beekeeping on a large scale. He has a few colonies of bees in good healthy condition; but because of the law supposed to be in force he is forbidden to bring them in, even if they are just over the "townline" of the said county. It would be human nature to try to test the validity of such a law, and I really should like to see some with enough ginger in them to see what would happen if they dared to take in a few perfectly healthy colonies.



Regarding that article of mine on finding queens, p. 619, Oct. 15, some have wondered why I did not use a taller tent, so that I could have stood erect while at work instead of being forced to be on my knees all of the

time. In explanation I will say that the apiary is in a yard that is full of cherry and other low trees, and it was very difficult to use the tent I had in some cases, to say nothing of one much taller. Some other friends have suggested the idea of getting rid of the field bees before starting to hunt for the queens; and while I had thought of this before starting the work, the robbing tendency of the bees at the time I was there made me fear to demoralize unduly the colonies for fear there would be trouble after the work was done. As intimated in the article referred to, many plans that will work when no robbing is to be feared, are not practicable at a time when no nectar is coming in, and the bees will go wild if hives are opened when not under cover.



When sending in notes for Feb. 1st GLEANINGS I stated that the weather up to time of writing (Jan. 5th) had been very moderate. Since then we have had the most severe winter on record, and the official figures from the Toronto observatory state that January of 1912 had the lowest average temperature they have recorded. Since Jan. 5 we have had nothing like a thaw; and this morning, Feb. 10, the thermometer is 25 below zero—the lowest I have on record for our locality. With six weeks of steady cold weather, certainly things are not looking any too well for bees which have been wintered out of doors; but an examination shows that the bees in packed hives are wintering well so far as external conditions indicate. By the way, I have 20 colonies wintering outside in hives made of double boards with cardboard between—no packing on sides or ends of hives, but an abundance over the frames. There will be a different story to tell about them; and for the present, suffice it to say that they are veritable ice-boxes, and I am having a big time to keep the entrances free from ice. At a later date I hope to say more about these, for just at present I would have to do too much guessing to give any thing like a reliable report. Yesterday the thermometer stood at 14 below, and, as already stated, this morning it is 25 below. As I had not looked at the thermometer inside the hive for over a week I thought it would be well to see how things were going after two days of such very cold weather. The reading was 31 above, which makes a difference of 56 degrees between the outside and the inside of the hive. The thermometer was at the outside of the hive about 3 inches from the side of the cluster, and was suspended in the hive with the top slightly below the tops of the frames. Possibly the difference between Medina readings and mine may be accounted for by the depth the thermometers hang in the hive; for, the lower they hang, the colder they will register.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Twenty-five days' work for each one hundred colonies should be all that is required during the year. A careful system is necessary to accomplish this, but there are men who are doing it. With the aid of autos the number of working days may be reduced, no doubt. One of the chief causes of lost time is unfavorable weather just when out-apiary work is to be done; for if a rain starts in while at the outyard all one can do is to rest and wait, or go home, unless there is a shop where beework can be done.



CLIPPING QUEENS—DOES IT PAY?

Here is a point worthy of thought: The largest and most successful honey-producers do not clip their queens. These are the men who sell from one to two carloads of honey a year, and have the largest bank accounts. You will notice that I have said *producers*. The men would probably not claim to be the best beekeepers, but they carry on their operations on such a large scale that they do not have time to hunt up queens and clip them. They claim that it does not pay them with conditions as they are in Colorado.



BEEKEEPING IN COLLEGE COURSES.

Agriculture is fast being introduced into our schools, and nearly every high school now has domestic-science and manual-training courses with a fine equipment. There is a dearth of scientific beekeepers; and if we could get courses introduced into our schools of agriculture it would advance the industry very much. What would it be worth to the State if in every agricultural short course the principles of beekeeping could be taught? It would raise the status of the average beekeeper very much.

It is simply up to the beekeepers in every State to take up this matter. We are going to have something very soon now in Colorado, and we shall be able to train our young people—some of them at least—to keep bees right. Colorado is a ripe field for better beemen, and we must have them to do our industry justice.



THE CENSUS AND COLORADO BEEKEEPING.

Colorado lost 20 per cent of her beekeepers (about a thousand) in the ten years from 1900 to 1910. During that time, however, she gained 20 per cent in bees, or about 11,000 colonies. The value of bees increased from \$195,000 to over \$300,000. Foul brood has to take most of the blame for the loss of beekeepers, although the specialists have been buying the small beekeeper out in many instances. I doubt very much whether the figures given are very accurate, as

there are many bees kept in towns, and then some beemen would be slow about giving in the full number of their colonies for fear the assessor would get hold of the list; for many a farmer would be suspicious as to whether it was merely for the federal census or not. The census, nevertheless, has given the general trend of Colorado beekeeping in a satisfactory way.



"THE CHANGING ORDER."

The expensive methods of distribution are not going to last much longer. There is a determination on the part of the consumers to deal as directly as possible with the producers. Witness the work of Mayor Shank, of Indianapolis, and hundreds of others scattered over the country. Many cities are establishing or have established municipal markets where the producers can take their produce and sell directly to the people. Whatever plans the National Association undertakes, it will be well to adapt the procedure to the marketing movements of the times. An economical method must be devised to supply each market with the honey it demands, and to keep all supplied and none overstocked. The method of consumers in going to the markets with their baskets is too wasteful of effort. Buying clubs or associations will work better. There are buying associations already in operation, and it would pay some of the beekeepers to get in touch with them to reach these consumers.



GARDEN, ORCHARD, POULTRY, AND BEES.

When is a beekeeper not a beekeeper? When he allows the bees to work for nothing and board themselves, while he farms, gardens, and raises stock. This need not be, for some of our very best beekeepers raise poultry and have a profitable garden, and some of the largest producers of honey raise, in addition, apples, potatoes, or onions by the carload. Colorado has lumbermen, stockmen, farmers, fruit men, and business men all successfully interested in bees. Several bank presidents got their start with bees, and there are several bank directors who are keeping bees for the money there is in them. I like to see a man, though a beekeeper, who is alive to the possibilities about him. I would just as soon work in my acre orchard as with the bees, and sometimes I like it a little better. The principal part of one's living will come from the garden vegetables, apples, plums, and strawberries. The cow and chickens help out, so that, with the cull honey that is not fit to ship, we find that the grocery bill is easily cared for. The main honey crop and the shipments of apples will be used to build the new house or to extend the business.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

CALIFORNIA STATE BEEKEEPERS' ASSOCIATION REPORT.

On February 8 the 22d annual convention of the California State Beekeepers' Association ended its three-day session. Every thing considered, this was the most business-like and harmonious session of its history.

The way for many needed reforms was blazed, and plans which were made were left in the hands of competent committees for further advancement. Needed laws were drafted, helpful resolutions were passed, and, best of all, between the North and the South the hatchet is said to have been buried.

To enter into the details of proceedings would be a great task, and much of it dry reading, so I will merely state briefly some of the work done.

Every one who was on the program, and could be present, did his part well; but some special recognition is due to certain members whom I shall name. I wish to mention one man especially, who, though not alone in the work, certainly had most of the burden upon his shoulders—Mr. A. B. Shaffner.

The treasurer's report showed a neat balance, which in itself indicates the prosperity of the association.

Mr. G. L. Emerson's paper, "One Thousand Members in 1912," was one that commended itself to every member present. His ideas of individual work for the increase of membership, crop-report recommendation, and a perfect organization collectively were timely, and to this end a subscription was started to raise funds that we may be able to coöperate with other organizations of the State. Mr. Emerson explained that there is no feeling against the northern association.

Here I might add that, as every member can vote by proxy, it seems that there should be no longer any trouble about representation; for one man from the north can take every member's proxy he may secure, and vote it as he sees fit.

At the evening session on the 6th the lecture, "Some Wonders of Our Little Co-workers," by Prof. Ralph Benton, was the best of its kind I have ever heard. He described and illustrated the anatomy of the bee. Mr. Benton is, without doubt, the scientific man of our association. His lecture was not as fully appreciated, however, as it should have been, for some take but little interest in the scientific part of the industry. On the other hand, those who were interested were intensely occupied in thought during the lecture, and had only praise for Mr. Benton.

Perhaps the special feature of the morning session on Feb. 7 was "Queen Rearing," by Henry Perkins. This subject seemed to

appeal to the members at this time especially from the fact that European foul brood is spreading in our Southland and queen rearing and introduction have a special part in the eradication of this disease.

One topic of the afternoon session was "The Black-brood Epidemic," by J. D. Buxby, who is now a recognized authority on this disease. His remarks were eagerly listened to; and in closing, when he exhibited two frames of diseased brood nearly the entire assembly made a rush to examine them, indicating to what extent beekeepers are exercised over black brood or European foul brood.

The report of the county inspectors was made at this session. The remarks of Wm. H. Allen, of Ventura Co., and J. E. Pleasants, of Orange Co., were exceptionally valuable, as they dealt primarily with facts regarding the number of colonies inspected, and the diseased colonies found in this and previous years, showing the progress of the inspectors in their work.

The election of officers resulted in the choice of Mr. J. W. Farree as president, and the unanimous re-election of the secretary-treasurer. Of our president I can no better express my thought than to say he is a live wire—efficient, energetic, and enthusiastic—meeting work half way.

The session closed with reports of various committees and delegates. Many topics of interest, on which I have no notes, may appear later in this department.

The practice of California honey dealers in quoting honey at ruinously low prices, simply to lower a local market for their benefit, was unanimously condemned. In the future, beekeepers will be on the lookout for such dealers.

The committee on forest reserves made a recommendation that, if secured, will put beekeeping on a par with some other industries on forest reserves.

The loss by death of so many prominent beemen of State and nation was noted in suitable resolutions. Some changes in the constitution were recommended and adopted.

A resolution introduced by G. L. Emerson, asking the county board of San Bernardino County to remove the bee inspector of that county for sufficient cause, was adopted.

Mr. Delos Wood was voted life membership in the association. This veteran of the rebellion and of the bee business, now in his seventies, has suffered the loss of practically all of this world's goods by fire, including apiaries whose value reached the thousands.

[It has been stated that there are 50,000 colonies in Los Angeles Co. alone. This gives an idea of the extent of the industry in California.—ED.]

Conversations with Doolittle

At Borodino, New York

SUCCESSFUL BEEKEEPING

"I am a man with limited means, and must do something to make a living for myself and family. I have fallen violently in love with bees, and have ten colonies. I have been wondering whether I could not build up in the bee business till I could make enough of a success of it so that I could spend my whole time caring for the bees, and thus be doing something that I like. Therefore I take the liberty of asking you to say something along this line in GLEANINGS."

"The one thing in your favor is your love for the bees. Occasionally one may be successful when going into a business which he is not in love with, simply because he enters into it for the money he hopes to make out of it; but this is the exception rather than the rule. Except to the man who has missed his calling, there is real fun and play in all of the energy put into that pursuit which one has chosen. I have known people to be so engaged in their pursuit, and to love it so well, that the most exciting ball game was more tame to them than the same time spent wielding the hoe in some favorite field of potatoes. Scores of others exert themselves in playing ball throughout some sultry afternoon, calling it the height of fun, thereby wholly unfitting themselves for the next day's work in the field, doing scarcely half of an average day's work, and considering what they did do as only drudgery. It would be easy to prophesy that "successful potato culture" will not be written opposite the name on the score of such at the end of life's journey. Therefore, this axiom can be laid down: 'To be successful in any calling in life, the one entering it must have a love for that calling.'

"Notwithstanding this axiom, it must be further said that, from the calling chosen, at least enough must be derived to support the one working at it and his family. Otherwise, there must sooner or later come a turning from that calling unless financial aid comes from some other source. I remember a well-to-do man who went into beekeeping for the love or pleasure there was in it, using this same beekeeping as a side issue as he called it. A year or two later he was telling of the added profit that came to him from the bees. I remarked that I understood he was in the business for the pleasure there was in it. 'Right you are,' he said; 'but the greater the profit, the greater the pleasure.'

"I must confess, as I look over my forty-two years of life as a beekeeper, that, while there has been a rare pleasure in the work (Mrs. Doolittle has often said, after calling me again and again, that I think more of the bees than I do of my dinner), that my main object has been to gain a livelihood and to secure money for the comforts and

pleasures of life. And while I have taken great pleasure in my bees *all* of these years, and from this life in the open has resulted the robust health that can not be gotten in any business requiring indoor employment, yet neither pleasure nor good health would have kept me faithful to beekeeping had there not come from it a good living, and something besides for 'a rainy day.' And I am as free to say that I consider it doubtful whether any beekeeper will ever reach the financial stature of a Morgan, Vanderbilt, or Gould; yet if rightly followed, and with a love that will keep one at it through seasons of failure in nectar secretion as well as in prosperous seasons, apiculture will prove as remunerative as almost any other branch of agriculture. But without the necessary *love* for the bees the poor seasons, as we call them, when the 'heavens seem as brass' throughout the time of all nectar-yielding flora, discouragement is sure to come, the business to be neglected, and blasted hopes and failure are the outcome. Thus it is that this *love* part in any business is the anchor which holds through storms, and makes success certain when the 'clouds roll away.'

"And the chances of success *every* year are much better in these days of comparative swarm control, trolley lines, and automobiles, than when we older ones started. It is a rare thing that an entire failure of nectar happens over a large area of country; and very many times when there has been a partial or nearly entire failure in the secretion of nectar at the home apiary, I have secured at least a fair yield from the out-apiary five miles away, or *vice versa*.

"Now, if it happens that your environment keeps you in a location not blessed with the desired nectar-producing flora, if you are near a trolley line you can locate out-apiaries along this line as fast as your bees increase sufficiently to warrant it. Or if you can afford an automobile, these out-apiaries may be located in any place of abundant nectar-secreting flora, and thus the chances of success be far better than in the slow days of forty or fifty years ago. I can hardly realize the possibilities that are before the young, energetic man of today, who, with a love for the pursuit, goes into beekeeping."

The Double-walled Hive Better Even for the South

I have kept bees in three of the Northern States, namely, Wisconsin, Michigan, and Indiana, and have found the double-walled hive the best for cold weather. I have proved it to my own satisfaction again and again. I am now in Southern Alabama, and I find again that the double-walled hive, when well ventilated, is also the best for hot weather. The air-space gives an even temperature so that no combs are lost by the heat, and the bees do not remain on the outside of the hive on hot days.

Magnolia Springs, Ala.

E. DEUSENBERRY.

General Correspondence

IN WHOSE LOCALITY?

Paper-covered Hives with Large Entrances versus Double-walled Packed Hives with Moderate Entrances; do Bees Prosper in a Zero Temperature?

BY ARTHUR C. MILLER.

So the time has come when one must head every article "In this locality." Forsooth, I thought the veterans at least could remember that, but it seems not. Hold! Ah, ha! Ernest is to blame. It seems that he picked out the boys to make the reply. I wonder why he did not pick some one in Texas.

Little did I think that I was going to step on the pet corns of those Canuckers when I wrote that article; and, in fact, I was no more thinking of them than I was of the boys in the tropics. Well, boys, see here. You needn't give up your chaff hives. I'll let you use them as long as you wish. You don't intend to give them up? Well, then, what in thunder are you making all this pother about? You fellows have forgotten—well, never mind what. I'll just ask the other boys to turn to Holtermann's eulogies of cellar wintering scattered through the bee papers. No, Holtermann, I'll not shut up. If cellar wintering is as fine as you so long and so forcefully maintained, why are you now using the formerly contemned chaff hive? I like to hear a man try to explain away facts—if he doesn't stutter.

And there is Byer. Hm! Say! just because you got the better of me once, don't let it make you over-confident. Let me see; you once tried my black-paper plan of wintering and fell down on it. And if memory serves me rightly you modified my instructions *just a little* because you thought I had erred in some points. And now you want to put the blame on me. If I am going to try a man's plan I'll try it just as he gives it; and then if it does not work with me I'll try it with my notions tacked on.

Now, you two boys hug yourselves—and each other if necessary to give vent to your ecstasy—and get all the fun you can. The editor has up his sleeve something else along the line of "cold storage" of bees which, mayhap, will cause you to let up on poor Miller and take serious thought unto yourselves.

After the foregoing was written, GLEANINGS for Feb. 1 arrived, and I have carefully read what is written there. One important point stands out strongly; that is, that a temperature of freezing within the hive when it is zero outside is considered "keeping the bees warm." In my own experience, bees stand and prosper in a zero temperature as well as in one thirty degrees higher.

It is exceedingly hard not to restrict the entrances in the spring, so strong is old belief; and restricted entrance with black pa-

per, when it is unsafe for bees to fly, is sure to bring disaster.

A careful comparison of two apiaries, one of which had the entrances reduced as soon as it was safe to do so, and the other out of convenient reach at that time, and hence left with the full entrance, showed no appreciable difference in results; and as labor which is not profitable is eliminated I now let the entrances alone.

As to the application of black paper: As usually put on, it only partly fulfills its intended purpose. Tied down with string, or secured with a few short pieces of lath, it is of little help. It should be put on so no air can pass under it—that is vital. One can not blow far into a bottle; and if the neck is crooked and the inside filled with obstructions, no draft will reach the bottom; and on such order is the interior of a properly papered hive.

Again, the editor makes a most grievous mistake in likening a cluster of bees in winter to a radiator. They are the reverse of that, and every effort of their life and behavior is to minimize radiation. Study such a cluster, and analyze it and see. Also wax is a very poor conductor of heat, and the combs help materially in maintaining steadiness of cluster temperature.

I note one factor as I see it, or I may be mistaken. It is difficult to be sure from mere description; and that is, that colonies in the regions of prolonged cold seem to go into winter quarters with more bees than they do here. If this is so, it will explain some of the differences between Mr. Holtermann's observations and mine. Also these big (normally there) colonies may tend (have?) to breed earlier than they do here; and that, if so, will explain higher internal temperature.

Another factor is to be noted. The sun is higher at parallel 41–42 than it is at 44–45, and this may be of considerable importance.

Now you boys just stick to every old plan you want to, and jump on any new thing you please, whether it is in "your locality" or not; and the more unnecessary paraphernalia you cling to, and the more needless operations you go through, the easier it will be for me to compete with you.

But you may even yet be right for this locality. We are having the hardest winter for bees in thirty-two years; and if the bees come through it safely under my system, it will be fully vindicated.

Providence, R. I.

[Bees can stand a great deal more cold than we think. There are some conditions under which they may freeze stiff, and yet not be much the worse for the experience. The same is true of fish. Admitting all this to be true, we believe that the bee is essentially an animal that thrives best in a moderate temperature. The inside temperature of our double-walled packed hives,

away from the cluster, varies from 20 above to 75 during winter. Yesterday, with a temperature outside of 2 above zero, we took the reading from a thermometer shoved through the packing into the cluster of bees in one of our double-walled packed hives. The cluster was not disturbed, nor was the hive opened up when the reading was taken. The inside of the cluster was 75. Later in the day we took another reading. The cluster temperature was the same.

While bees under some conditions can stand severe freezes for a short time, our experience at Medina indicates that it is hard on them. If plenty of packing and a double-walled packed hive will make the air surrounding a cluster of bees from 20 to 40 degrees *higher* than the outside temperature, it imposes a much less strain on the vitality of the bees. We therefore believe that *any* system of protection that provides a difference of only two or three degrees between the outside and inside of the hive would not work in this locality nor any locality in the vicinity of the Great Lakes. Here we are liable to have long continuous cold—not short zero snaps of a day or two.

It is the *long-continued low temperatures*, often accompanied with high winds, that make packing, and lots of it, essential for outdoor wintering. Our correspondent has a different set of conditions, and we do not say that his scheme of winter protection is not the thing for his locality.—ED.]

WHAT THE NATIONAL BEEKEEPERS' ASSOCIATION WILL DO THIS YEAR

BY E. B. TYRRELL

As every beekeeper knows, the meeting of the Board of Directors held in Detroit, January 23, was probably the most important of any board meeting held in the history of the Association. Plans of reorganization had to be considered as well as just what the Association would and should do for its members.

One of the most important needs of the beekeepers, as it appeared to the directors, was an accurate knowledge of crop conditions. To get this, it was decided to send out crop reports early in the season to every member, and, from the information so obtained, advise the members, either directly or through the bee journals, as to conditions.

The Board also found that the question of honey packages was an important one. At the present time there is not nearly the uniformity there should be. No special weight of tin or size of can has been adopted in the past, and many shippers were using a tin entirely too light. Samples of honey-cans were inspected by the Board, with the decision that the Secretary be instructed to make the best possible arrangements for furnishing the members with the tin honey packages the coming season. The orders will be handled directly through the Association office, and will not be sent by the member to the can manufacturers as in the past.

In discussing the question of packages for comb honey, and realizing that there are a number of different kinds and shapes in the market, it was thought best that, in order to promote uniformity of a comb-honey package, the Association should take steps to secure for its members, at the lowest possible prices, the double-tier 24-lb. shipping-case which was adopted by the Association at its last convention.

These cases could be furnished according to specifications, so that every member buying through the National would be using exactly the same case as every other member. In order to induce a more general adoption, it was thought advisable to furnish them at a low price. The secretary was also instructed to investigate paper shipping-cases, as well as glass packages. This action was not taken with an idea of getting into the supply business, but to promote the using of uniform packages by the members, which then will simplify the question of marketing, and eventually raise the price the beekeepers can obtain.

The question of marketing honey was thoroughly considered, and many plans were presented. The one finally decided upon was that, for the coming season, the National Association should act in the capacity of broker for its members where desired. It is not expected nor desired that all members ship their honey through the Association; but realizing that many are not in touch with the best markets, it was thought that no better move could be made than to assist these members in obtaining the proper return for their honey crop. To do this, selling agencies will be established in several of the larger cities, and the sales will be directed through the Association. A member having honey to sell could first get instructions from the secretary, who is expected to keep in close touch with market conditions, take into consideration the freight rates, and then give the member full instructions as to shipment. The association does not intend to buy and sell honey, but simply to assist the producers in finding the best possible market.

The promotion of local branches will be encouraged; and wherever a local branch desires to get out a booklet, such as has been used by the Michigan Association, assistance will be given by the National Association. This feature will be encouraged. The advertising of this booklet will be cared for by the National, but will probably be confined on the start to the four bee journals.

Detroit, Mich.

Failure in Cuba Honey Crop

Both the summer and winter crop of honey have been almost a complete failure here. From 1500 colonies I got only 110 barrels of 50 gallons each. No rain until May was the cause of the failure of the summer crop, and no rain all summer; then three weeks of it in the heart of the honey season—the cause of the failure of the winter crop. A crop, according to former years, would have been 300 barrels. Moreover, the price was good—from 40 to 46 cts. a gallon in Manzanillo.

FRANK REIMAN.



A summer view of one of Allen Latham's apiaries.

A CONTRARY BEEKEEPER

A Nutmeg Stater who Defies All the Rules of
Bee Culture, and Wins

BY ARTHUR C. MILLER

Bee culture is a tradition-fettered industry. As Methuselah said, so must it be; and he who dares preach contrary to the teachings of the fathers is *per se* a heretic, an outcast. Lift your voice in questioning of the established order, and at once you are considered an iconoclast. Blessed be all such, for they are the hope of generations of

beekeepers yet to come. Askers of awkward questions, up-setters of pet theories, disturbers of the peace, shatterers of reputations! May their shadows never grow less.

An adopted son of the community famed for its wooden nutmegs stands preëminent as an iconoclast in apicultural matters, and they call his name Latham. Solid of build, sandy of complexion, he looks out of a pair of twinkling eyes in a manner both cordial and disconcerting. Is it to laugh at you or with you, you know not. State your case most cautiously, lay down the law point by point, establish your position beyond seem-



A part of the same apiary in winter.



Some store combs from Latham's "Let Alone" hive. The four show how the bees "work back," the full combs being next to the brood chamber.

ingly possible dispute, and with one word or one careless question he will turn your carefully builded structure into a tumbling house of cards. Oh! a canny boy is Allen.

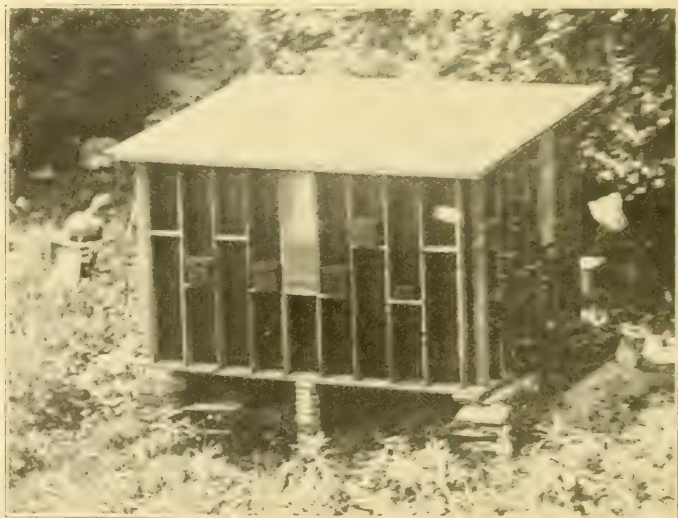
As an observer of bees and their work, he stands second to no one. As a beekeeper he is never content with what he has done, but must do better. And to him, "better" means not only more product and higher quality, but lesser cost, a matter in honey production so rarely spoken of that one may well doubt if it is often thought of. But it is the "motif" in Latham's symphony, and the marvels it has led him to do would fill a book. Tell him that a saving plan which he would adopt is not feasible, and you wave a red rag at a bull. He will do it, even if it is impossible. Keep away from Allen Latham if you want to plod along in the tortuous and shady path of your granddaddy; for if you once get under the magic power of his methods, your days of self-complacency are numbered.

Just think of a man examining his colonies and gathering his crops—bumper ones too—at Christmas time, in bleak old New England. For instance, he this year took the crop from the hives of one apiary on

the 6th day of January, with the temperature at ten degrees Fahrenheit, and the wind at fifty miles an hour. No, nothing crazy or suicidal about it. He has done it for years and is steadily increasing his bees and his crops.

The hive and the system with which he accomplishes this and other seemingly impossible things are well worth a description, and the principles involved are worthy the study of every serious beekeeper. The "Let Alone" hive and system is the title he has applied, and most fittingly too; for some of his colonies he sees but

once in a twelve month, and then in mid-winter. A big black box three feet long, a foot and a half wide and high, is this hive. At first glance it looks much like the old "Long Idea" hive of General D. L. Adair, and it is and it isn't. The Adair had the entrance in the middle of one side; the "Let Alone" has it at one end. The cover telescopes about three inches down on the body, and the whole is covered with a good grade of one of the asphalt roofing-papers black in color. Nice and cool in a blistering August day, eh? Don't you worry. It



Latham's nucleus-wintering and honey-handling house. The nuclei are shown on shelves between the studding where they are convenient to handle in the summer, away from weeds, and out of the reach of toads and other vermin.



This photograph shows a part of my apiary of 40 colonies under a good shed 75 feet long. I have very little time to work with my bees, but I improve every spare moment I have. This spring I am going to give each colony two supers of sections, and if it is a good honey year I will have plenty.

T. C. HAMBLBY, Santa Clara, Cal.

works. Most of the lumber used is half-inch box stock. The floor is nailed on, and has three rugged cleats across the under surface.

In the Adair hive the queen had the run of all the combs; in the "Let Alone" she is restricted to the seven next to the entrance. And the frames outclass the Jumbo, being $17\frac{1}{2}$ inches long and 15 inches deep, with ends and tops "closed." Along the upper part of the hive sides are nailed strips on which the frames hang, and in the lower corners are beveled strips against which the bottom corners of the frames touch, so that, when the frames are in place, the hive is virtually double-walled and air-spaced.

The first seven frames are wired, and fitted with full sheets of foundation; the other fourteen have a vertical bar in the center, are without wires, and are fitted only with starters. Back of the seven wired frames is hung a sheet of excluder zinc, and this serves to separate the brood from the surplus compartment. The entrance extends away across the front of the hive, eighteen inches, and is one inch high. It is permanently guarded against the ingress of mice by a row of wire nails. And it is left wide open for three hundred and sixty-five and one quarter days in the year. Mark that, you skeptics.

The surplus chamber is approximately $17 \times 14 \times 22$ inches, and will hold about 150 pounds. If it so happens that the crop is removed in the fall, then it remains empty all winter. A most beautiful way to kill the bees, isn't it? Just think of a colony of bees in the front part of such a box with that great empty chamber behind it, and

eighteen square inches of open doorway! A man who would seriously consider keeping bees in any such fool way as that must surely have something the matter with his brain. Well, he has, but not on the line of foolishness—oh, no! only of progressive thinking and of daring.

It is not enough that he should make bee-keeping in such hives a success in sheltered spots; but he must needs attempt the impossible, so he planted colonies here and there on the upper end of Cape Cod, about the last place on earth to expect success in honey production. And there again he fools you. His reputation for veracity is good; but when he talked of an average of 150 pounds to the colony down on that bleak sand spit, one man at least had to go and see how bees extracted nectar from sea-water. And the honey was there—great sheets of pearly combs full of their golden store, and the bees tumbling in with more.

The gales from the wide Atlantic appear to be impotent against the bees' work in summer or their comfort in winter, for there those wide-entranced hives stand all through the storms and gales, heat and cold. For most of us the bees would promptly become quite dead; but not for Latham. They dare not. That wizard has filled them with such a sense of fear or something, that, whatever he says, they do. He has even persuaded them to abandon the classic "bee-line," and one finds his bees ducking and dodging around the sand dunes and following along the railroad cuts, zigzagging here and there and anywhere out of the wind till they are close to home, when with a dash they plunge over the bank and down into their hives.

The hives are usually stocked by running a natural or artificial swarm into them. The bees are then instructed to set up house-keeping, provide themselves with a proper amount of supplies, and put aside a suitable surplus in return for the care (?) and oversight he has given them. Talk about the high cost of living, and then think of taxing those poor little bees one hundred pounds of honey for the rent of an old barn of a box without any stormdoor on it!

But the insatiate man is not content with that, but, forsooth, insists upon the bees sorting out the various kinds of honey for him, each kind in a comb or combs by itself, and the meek little creatures do so, as far as the flows permit. It happens in this wise: The bees fill the brood-chamber and then crowd through the zinc, build comb in half of a frame and fill it, then in the other half, then into the next frame, and so on. He has merely applied his hive and frame arrangement to fit the habit of the insects.

Yes, they swarm sometimes, but not very often; and as most of the queens are clipped they seldom depart, but return and settle down with the young queen, which, of course, is against the rules of the game, but those don't count with Latham.

He keeps bees in the conventional hives, too; has some eighty odd colonies thus; and that he does it well, witness the summer and winter views of one of his yards. His home yard is an interesting place to visit, and there will be found all manner of hives, appliances, and experiments. One of the striking features is a honey-house built "inside out"—that is to say, the studding is on the outside; on the inner face of that, heavy water-proof paper; and within that, matched sheathing. It is placed on a foundation of stone laid dry, and the shallow cellar is open on one side, so that literally the house is hung in the air. GLEANINGS for Jan. 1, page 3, says, "Do not winter in a closed room above ground." But Latham winters thirty or forty baby nuclei in this closed room above ground, and has done it ever since 'twas built, three or four years ago. So exceedingly careless of him to do such a thing without consulting anybody!

And those baby nuclei! utterly different from any used by other folks. One nice little entrance-hole, easily defended against robbers, isn't at all to his liking, so he has two such holes—perhaps reasoning that, if



Laughlin Falconer, 94 years old, a pioneer Chicago beekeeper; his son, and one of his assistants.

one is easy to defend, two will be twice as easy. The blooming combination works just because it shouldn't.

To feed them he floods the lower part of the little box (previously water-proofed) with syrup—a jolly nice way to start a robbing scrape, but it doesn't. His nucleus construction and operation is a fine story in itself, and perhaps the editor can persuade him to tell; and if so, let the reader be warned that, no matter how improbable things may seem, or how weird his tale, it is so if he says it, even though every other beekeeper has tried it and failed.

'Tis jolly lucky for Allen Latham that he lives in the twentieth century rather than in the days when belief in witchcraft ran riot.

Providence, R. I.

BEEKEEPING IN A CITY

A Great Record by a Man who is Now Almost a Centenarian

BY J. L. GRAFF

The accompanying picture show a part of an apiary that has helped to furnish a city now numbering twenty-two hundred thousand people with honey for sixty-seven years, and is still producing 9000 lbs. a year. It not only in a large measure has furnished a living for its owner, but has supported a whole family.

In the last thirty years it has produced 135 tons, and the output for the previous thirty-seven years would run the total production to considerably over 175 tons.

This apiary was started on the banks of the Des Plaines River, Illinois, in 1844. It was started from the capture of a single colony from a bee-tree, and hived in a barrel.

Four years later, all the accumulation of bees and honey was moved to a farm of 160 acres which is now located inside the city limits of Chicago. The man who started this apiary is still operating it at the age of ninety-five years. His name is Laughlin Falconer, and he is assisted by his son, William W. Falconer, who says that there has never been a failure in more than three-score years. There were years in which the production of honey was less than in others, but there has always been a paying quantity after allowing sufficient to winter the bees.

The little workers, during most of the time, have foraged on sweet and alsike clover, and much on a prairie bloom that closely resembles a sunflower.

The bees have always been sheltered in winter in the crude manner shown in the photograph. They are now confined in modern hives, each of which in the cold months is first wrapped in burlap, then in old newspapers, and then a whole bench is buried in leaves, and the leaves confined by weather-boarding—tops, sides, and ends. In late years the whole of the product to be sold has been extracted and disposed of in gallon cans.

This near-centenarian apiarist, however, is but one of a number of city beekeepers in Chicago. Not long ago, at a meeting of an association in Chicago, representing several States, fully 25 out of 150 beekeepers were Chicago apiarists. When the big

drainage channel was built, and huge banks of clay and other material were piled up along the canal, this deposit in a short time was covered with a rank growth of sweet clover; and on this, bees from a wide area of country worked with great results.

One of the mail-carriers of the Chicago postoffice is one of the most successful beekeepers in the Middle West, operating his bees in an expansive backyard. This man gave considerable attention to the breeding of bees of mild disposition, and he claims to have had noticeable success so that his family are able to use the yard; and pedestrians can pass the place without being attacked by the bees. This apiarist sets up the claim that a good disposition may be bred in bees, just as other breeders secure this trait in live stock.

Chicago, Ill.



PREVENTING BEES FROM GETTING THE SWARMING IMPULSE

A Vestibule Attachment Communicating with an "Annex" Providing Extra Room

BY DR. L. A. SIMMON

In presenting this device to the bee-keeping public I am conscious that there is a good deal of skepticism in reference to mechanical devices that purport to facilitate the control of bees. But I am also confident that the invention will produce the same



An apiary in Chicago that has produced, during the last 97 years, over 175 tons of honey.

results for others that it has for me, and therefore meet with general favor. The details of its construction are based on a thorough working knowledge of the instincts and natural activities of the bees, and every step in the system to be described in the application of the swarm-controller in its various uses and functions is made to conform to these natural laws. There is, therefore, no possibility of failure or disappointment except through gross carelessness or neglect of duty on the part of the operator. I have tested it for a number of years, and what I shall say is the result of experience and not theory. It very greatly reduces the labor, and simplifies the processes of bee-keeping.

The control of the swarming impulse during the honey harvest is one of the most important subjects to the beekeeper. In my hands the device has been uniformly successful. I also make increase with it, almost automatically, at will. Transferring is no longer the disagreeable, wasteful, and gummy job it used to be. By the use of the controller, bees are transferred from box hives almost as readily as artificial swarms are produced. As a feeder it has no equal. The apiarist can feed his bees at any time, night or day, as easily as he can feed his chickens or his horse. The feeder is always in place, does not have to be stored away and hunted up again when needed. It requires no attention, and is not in the way. It affords the most natural and efficient means of storing and caring for empty

ed between two hives, into a closed chamber. On top of this is seen a square piece of board, which is the cover to the feeder hole. This block is turned aside, and an inverted Mason jar is set in its place, thus completing the feeder.

The openings in the sides are closed as desired by metal or wooden slides that are pushed in at the main entrance, against the inner sides of the openings. On the right side is seen a perforated zinc slide closing this entrance. Fig. 2 shows the opposite side of the controller, with its entrances.

HOW TO ADJUST THE SWARM-CONTROLLER TO THE HIVE.

Remove the $\frac{3}{8}$ -inch cleat at the rear of a Danzenbaker bottom-board, thus making a new entrance. Place the hive-body on the bottom-board and fasten it. Apply the left side of the controller, as seen in Fig. 2, to this new entrance so that it will register with the openings in the side of the controller, and make it fast to the hive with two screws through the holding-cleat. It is fastened to only one hive, preferably to an empty one, which we call the "annex." The hive containing the bees to which this combination is to be joined is prepared in the same way by removing the $\frac{3}{8}$ -inch cleat at the rear of the bottom-board, making a new entrance at the rear of the hive. The annex is now set up against this hive so that the entrances coapt as before on the opposite side. The device, properly positioned between two hives, is seen in Fig. 3.

Here also may be seen on top of the controller two metal slides ready for use, and one provided with a Porter bee-escape used in transferring. Further back on top of controller is seen the cover to the feeder hole. The rear end of the controller is here closed with a movable shutter.

HOW TO PREVENT SWARMING.

The practical beekeeper endeavors to keep his colonies from swarming during the honey-flow. It is then, as a rule, that the swarming impulse develops. Congestion of the hive with bees and honey is probably the principal determining cause, as well as want of room and a crowded house. Before this state of affairs comes

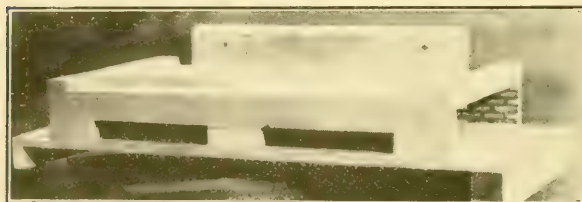


Fig. 1.—Simmons device for controlling swarming.

combs and surplus honey ever devised, and is worth to any beekeeper, for this purpose alone, more than double its cost.

Its principal uses will be described in a series of articles, of which this is the first.

Fig. 1 shows the general form of construction. In plain words, it is a box with open ends, having a central transverse partition which divides it into two equal compartments. In each side there are two openings, $5 \times \frac{3}{4}$ in., which are the entrances into the hives on either side. The central partition lies transversely across the chamber between these two entrances on either side. The top is 16 in. long, and the bottom is 19 in., giving $1\frac{1}{2}$ in. at each end of the bottom as an alighting-board. The depth of the entrance is $1\frac{1}{2}$ inch. The left-hand entrance is closed with a shutter, converting this end, when adjust-

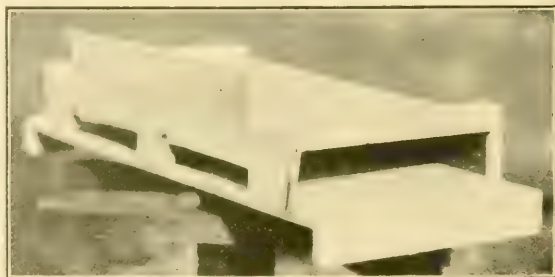


Fig. 2.—The other side of the device shown in Fig. 1.

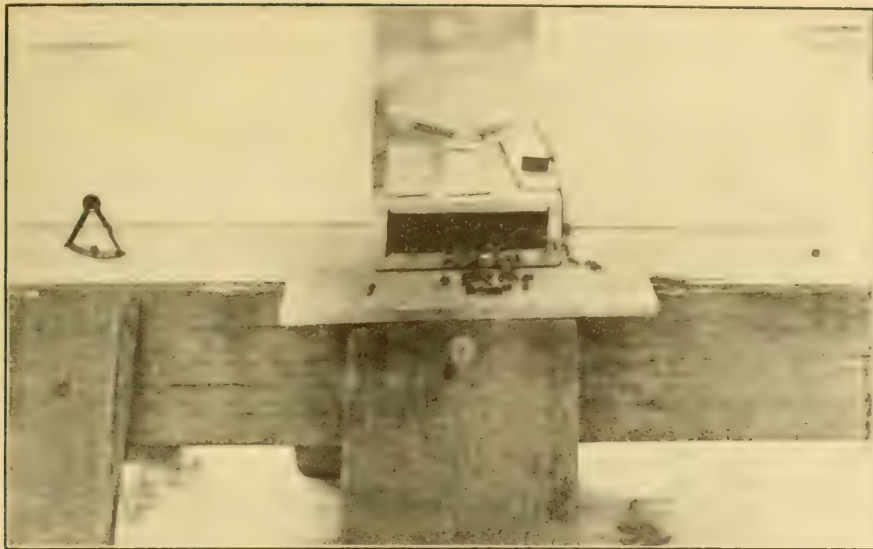


Fig. 3.—The swarm-controlling device in position between the "annex" and a hive of bees.

about I attach the swarm-controller and annex, and make the bees work through the controller.

Referring to Fig. 3, the left hive is the annex, the right containing the bees. The annex is filled with empty combs or full sheets of foundation.

There is now a free passage from one hive to the other through the controller. At the rear it is through a closed chamber; in front, across the front *entrance*, or *vestibule*, from side to side. The bees immediately investigate this annex, and occupy it with a strong guard. They seem at once to regard it, from the arrangement of contiguity and ease of access as a part of their domicile. In very warm weather, instead of lying out they go over into the annex, where they find room and a natural resting-place. When desired, the original front entrances (now the auxiliary entrances at the extreme right and left of the combination) may be opened to give increased ventilation. Supers are provided early; and as the outside combs in the brood-nest become filled with honey and pollen I remove those and set them in the annex, placing a frame of foundation in the center of the brood-nest, after separating the combs, one for every such comb of honey removed. Building up these combs furnishes employment for a class of workers that probably have something to do with developing the swarming impulse when not gratified. These new combs give the queen added room for breeding. When the second super is well started, and the first is completed, I set it over on the annex. These combs in the annex and the superimposed boxes of honey increase the interest of the bees in this division of their house. There are, during the active season, a great number of workers whose wings become badly worn,

and they are no longer useful in the field, but make excellent guards. These old bees naturally retire to a place of least resistance, out of the way. This annex provides for them a place of refuge, where their presence is of value as guards, and their lives and usefulness are greatly prolonged. There may be conditions under which this method will not prevent swarming; but in my experience they are extremely rare, and not to be reckoned against the system when employed before the swarming impulse is developed.

Auburndale, Fla.

[In the May 1st issue Dr. Simmon will explain how he uses his controller to check the swarming impulse, when once it has been established, by using it to switch the bees into the "annex."—Ed.]



TENNESSEE BEEKEEPERS MEET WITH THE FRUITGROWERS AND NURSERYMEN

BY GEO. M. BENTLEY, STATE ENTOMOLOGIST

The Tennessee State Beekeepers' convention was held in Nashville on January 27, and the program carried out completely. There was a good attendance—larger than ever before. This was chiefly due to the convention being held in conjunction with the annual conventions of the fruitgrowers and nurserymen, and through the efforts of this office in advertising the meetings, not only throughout Tennessee but all over the South. The stereopticon lectures by Professor George DeMuth, of Washington, D. C., and Dr. J. S. Ward, of Nashville, were especially entertaining and instructive. Each of these lectures was illustrated by 100 or more perfect slides; and as the lecturers proceeded, every detail was plainly shown on the screen. It was decided that



Hogs pastured in a field of white sweet clover near Delmar, Iowa.

the association meet next year in conjunction with the fruitgrowers and nurserymen, and use every effort to increase the membership.

The legislature of 1911 appropriated \$1000 for apiary-inspection work in Tennessee. The past summer this work has been conducted in Middle and West Tennessee. The coming summer attention will be directed to East Tennessee. The survey of the bee interests in the State as gathered by the State Entomologist is being revised and greatly augmented.

Knoxville, Tenn.

[The Tennessee Association is doing some advanced work along the line of beekeeping, and other associations in the country may well afford to take notice. It is a splendid plan, in more ways than one, to hold the annual convention with the fruitgrowers. From the Secretary, J. M. Buchanan, we received a report of the election of officers which is as follows:

President, W. N. Joseph, Nashville; Vice-president, David Wauford, Alexandria; Secretary, J. M. Buchanan, Franklin.

In a newspaper clipping giving a report of the convention we note that Mr. Buchanan stated, in his address before the convention, that European foul brood exists in Shelby and Robertson counties, and that American foul brood, which is more prevalent, is found in Davidson, Williamson, Roane, and Hamilton counties. Other counties under investigation are Giles, Lawrence, and Montgomery.

The association has now something over eighty members, between fifty and sixty of which were present. There are said to be 36,000 beekeepers in Tennessee. The annual value of the honey crop in the State is nearly \$250,000.—ED.]

HOW TO GET A STAND OF SWEET CLOVER

BY FRANK COVERDALE

After reading what Dr. Miller has to say, page 48 of the booklet "The Truth About Sweet Clover," I feared that he had not been reading my articles in the farm papers, for he says he is not able to get a good stand. Now, a great deal depends upon methods used and the conditions of the soil in which the seed is sown. I have made a specialty of investigations along this line, and making experiments under every conceivable condition: and I have found that it is so easy to get a perfect stand that no one need make a failure. It is quite plain to me that neither Dr. Miller's soil nor his neighbor's has any sweet-clover bacteria in it; and, for that reason, many of the sweet-clover plants will fail to grow nodules on the roots, but will turn yellow and die. If this same soil had been rich in plant food, every one of the sweet-clover plants would have formed nodules and made a perfect stand of luxuriant clover.

Nine years ago I sowed a sixty-acre field to white sweet clover, and also a forty-acre field. Although the plants started, not a single one lived until winter, and the whole undertaking was a failure because of the poor and impoverished condition of the soil. Many others around here lost their seed in the same way. The tables have turned, however, for we are now securing perfect stands of this legume, as shown by the picture of one of my neighbor's fields. His hogs enjoy a continued feast, and they keep it down to about six inches high by continual browsing. My neighbor has a field of alfalfa adjoining this, and he has been changing the hogs from one to the other, but he is much better pleased with

the results from the sweet clover, as it is so much more hardy. He has now bought seed to change his alfalfa-field into sweet clover, as the alfalfa won't stand being pastured. A few more farmers in this neighborhood have secured seed, and will have hog-pastures just like this one.

The field shown is identical with our own, especially our hog-pasture. I have come to the conclusion that every farmer can and should have a hog-pasture like it. Every one around here who has come to my knowledge is very enthusiastic over the success, and is securing new supplies of seed to be sown next spring. This fact speaks louder than any other. My seed is all sold.

Delmar, Iowa.

THE EASTERN NEW YORK BEEKEEPERS' MEETING

BY S. DAVENPORT, SECRETARY.

The Eastern New York Beekeepers' Association held its fourth annual convention Dec. 21, in the City Hall, Albany. Owing to unfavorable circumstances only a short notice could be given, and consequently there was a more limited attendance than usual, only about thirty beekeepers being present.

President W. D. Wright, of Altamont, presided.

The proceedings consisted mostly of routine business and the consideration of technical questions pertaining to beekeeping.

The members reported the past season as the poorest in many years. The production of honey was less than half of an average crop; but with the optimism characteristic of beekeepers, all hold bright hopes for the future.

The secretary's report showed a list of 103 members since the organization of the association four years ago. The treasurer reported a neat balance on hand.

The president, in his address, reviewed the condition of the industry, referring to the very unfavorable season and the shortage of the honey crop, and noting that a material advance in prices had resulted, which, it was hoped, might be maintained in the future. He called attention to the action of the National Beekeepers' Association in reorganizing that body and adopting a new constitution for the working of the association on a new and entirely different plan.

Much consideration was given to this subject, and many expressions of disapproval were offered. It was decided unanimously to take a vote by mail of all the members on the question: Shall we renew our membership in the National Association under the provisions of the new constitution?

The annual election was held, and resulted in the reelection of the entire board of officers as follows: President, W. D. Wright, of Altamont; First Vice-president, A. Johnson, Schoharie; Second Vice-president, C. W. Hays, Brookview; Secretary, S. Davenport,

Indian Fields; Treasurer, M. A. Kingman, East Greenbush.

This will make Mr. Wright's fifth term as president.

A communication from the Hon. R. A. Pearson, State Commissioner of Agriculture, was read, requesting the appointment of a delegate to represent the association at the annual meeting of the New York State Agricultural Society. S. Davenport was elected as such delegate.

A communication to the State College of Agriculture had been directed to be made, requesting that experiments be made along the line of reducing the length of the corolla of the red-clover blossom, to enable the honeybee to gather the nectar from it. C. B. Loomis, of East Greenbush, presented a communication on the subject from Prof. H. W. Webber, of the State Agricultural College.

C. B. Loomis presented for examination and consideration a sample copy of a writing-pad for the use of schoolchildren, having appropriate illustrations of the honeybee, queen, and drone, and a descriptive article on the honeybee and the desirability of honey as a food. This pad is issued by the New York State Association of Beekeepers' Societies with the object of advertising honey and increasing the sale of it.

A proposition to establish a honey exchange at Albany, for the purpose of disposing of the honey crop of members of the association, was discussed, and a committee of six appointed to investigate, consider, and report.

This gathering of beekeepers proved to be one of the most satisfactory conventions ever held by the association.

Indian Fields, N. Y.

HATCHING OF EGGS DEPENDS UPON CONDITIONS WHICH SUIT THE BEES

BY M. Y. CALCUTT.

I notice that Mr. Wm. L. Couper, p. 660, Nov. 1, takes issue with the editor, and inclines toward Dr. Miller, that a queen very seldom lays eggs that will not hatch. I also am inclined to think that the doctor is right in this respect. I think Mr. Couper must have overlooked the real reason why the eggs mentioned in his article were not hatched by the bees. My experience is from long study with one of the best observation hives which I have seen. The hive is constructed so as to take four single frames, one above the other, having glass on both sides of the frames, with a single bee space between comb and glass, the hive doors opening on the north and south sides so as to let the sun shine through the comb when desired. By throwing a dark cover over myself I am enabled to get a fine view from the north side, with the sun shining through from the south, especially when I have a new white wax comb.

I have found that eggs do not hatch until the bees want them hatched; and when

things are not just to their liking they will leave them for days or until conditions are just right to suit their fancy; and if conditions remain unfavorable, they will, within a reasonable time, remove the eggs and eat them. The mere fact that Mr. Couper removed these frames to another hive does not in any way prove to me that there was any thing wrong with the eggs, but that the conditions in the second hive were similar to those in the first, and therefore the bees would not hatch them. I have tried some interesting experiments along this line. I will give the result of one.

As there was no honey coming in from the natural flow I placed a division-board feeder in the fourth section of the hive, giving a pint of syrup at a feed. After the queen had filled the first comb full of eggs she moved to the second frame. The bees, meanwhile, had been at work drawing this comb down and storing syrup. After the queen had deposited a large number of eggs in this comb I stopped feeding, and watched results. The bees ceased to draw down comb, and commenced to remove the eggs laid by the queen. They would destroy them as fast as the queen laid them. After they had destroyed all the eggs but about as many as would go in a $2\frac{1}{2}$ -inch circle I again commenced feeding. These eggs had lain in the cells between four and seven days. The bees now began to take care of them and hatched them. Now, Mr. Editor, if I had not tried feeding again, these eggs would not have hatched, but would have been destroyed; but when the conditions were right to suit them they hatched them, and not before. A queen will lay sometimes whether conditions are right or wrong. The bees seem to determine these conditions to a great extent. This hive was not short of supplies in the comb, having plenty of sealed honey.

BEES TRANSFERRING THE EGGS OF THE QUEEN.

Can or do the bees sometimes carry eggs and place them in the cells? Yes. I caged a queen for four days in a hive that I had prepared with starters before shaking again on full sheets of foundation—a case of American foul brood. The bees drew down the starters and carried the eggs from the queen-cage, taking them from the wire where the queen had deposited them in bunches, and distributed them as nicely as the queen would have done. This can not be disputed.

WHY BEES SLEEP IN CELLS CONTAINING EGGS.

Mr. Arthur C. Miller, page 663, Nov. 1, says, "Bees sleep, and do a lot of it." Let us grant it. Does it follow that they crawl into a cell simply to sleep? I doubt this statement. And, again, "Their presence has nothing to do with the hatching of the egg." Is this true? I wonder, Mr. Editor, that they persist in sleeping in the cells that contain eggs. Why not sleep in cells that have no eggs? Has locality any thing to do with this? I have watched this very

closely, and I have failed to note an egg hatching in a cell that a bee had not spent considerable time in, and I also note that they do not spend any time *sleeping* in a cell of new comb unless there are eggs in it. As to whether a bee's head ever touches an egg in the cell I can not say. I have made my observations with a powerful magnifying-glass, and the sun shining through the comb; but I have invariably found that there was a bee in the cell on the opposite side. I have never been able to look through a comb and tell how close a bee's head was to an egg. If I could look between the head and the egg I might be able to determine this point; but I know of no way that one can look through a bee in a cell to determine how close its head is to an egg, nor to reverse it and look through the bottom of an empty cell so as to see how close the egg on the other side is to the head of the bee.

PACKING POLLEN IN THE CELLS.

Let me add to what Mr. Miller has to say about bees packing pollen in the cells, that never, so far as my observation has gone, do the bees that bring the pollen into the hive, pack it into the cells, although they put the little pellets in the cells direct from their pollen-baskets. Other bees do the packing of the pellets.

I should like to have Mr. Miller explain to me why the pollen-bearers go through the crazy antics that they perform before and after depositing their load of pollen in the cell.

ECONOMY IN USE OF FOUNDATION WHEN THE SUPPLY IS LIMITED.

I have a scheme for nice straight all-worker comb when I am short of foundation, and can not give a whole sheet. I wire all my frames, then cut four strips as wide as I can afford to give, fastening to the top bar and sealing two of them to the end bars, dividing the distance between these with the other two. I then fill in with short pieces of starters on the top bar. The bees will draw down from the top starters and connect with the upright strips, bringing the whole together in a beautiful straight worker comb, and they will not build drone-storage comb between these strips.

Seattle, Wash.

The Bee.

BY N. W. SAUNDERS.

God, our precious loving savior,
Sendeth down the rain and shower,
Then the flower; then the honey-bee
That flies from flower to flower,
And hangs around the leaf and bower,
Seems like God's precious promises
He offers without price
If we will but accept.
Yet we selfish creatures sell the honey
For the sake of sordid money.
But, thanks to God for all we see,
Especially the honey-bee.

Heads of Grain from Different Fields

Notice to Iowa Beekeepers

The beekeepers of Fort Dodge and vicinity are trying to organize a beekeepers' association for the State of Iowa, under the auspices of the National Beekeepers' Association. We find, in looking over Bureau of Entomology Circular No. 138 of bee diseases, that there have been reported in Iowa up to May 10, 1911, seventeen counties that have American foul brood, and sixteen counties more in which it is suspected; European foul brood in four counties, and one suspected; and it is scattered from one side of the State to the other, as you will see if you check the counties as I have; and you will see we have enough foul brood to infect the entire State, even if this is all there is in it. For the benefit of those who have not received Circular No. 138 I will give a list of the counties that have the malady.

AMERICAN FOUL BROOD.		EUROPEAN.
<i>Present.</i>	<i>Suspected.</i>	<i>Present.</i>
Allamakee,	Appanoose,	Guthrie,
Butler,	Buena Vista,	Johnson,
Carroll,	Cherokee,	Linn,
Clayton,	Davis,	Muscatine.
Clinton,	Ida,	
Des Moines,	Marshall,	<i>Suspected.</i>
Dickinson,	Monona,	Scott.
Fayette,	Monroe,	
Fremont,	Montgomery,	
Hardin,	Page,	
Linn,	Plymouth,	
Lyon,	Polk,	
Mills,	Scott,	
Pottawattamie,	Sioux,	
Sac,	Taylor,	
Story,	Vanburen.	
Woodbury.		

It seems to me that it is high time for the Iowa beekeeper to wake up and get busy. We must have inspectors in the field. In looking over the 42d Annual Report of the National Beekeepers' Association I find that they have 92 members in Iowa. What are you doing? Are you waiting for Messiah to rise up among you to carry the cross? The writer has been interested in the bee business only about twenty months; but he can see what the outcome will be if we do not get busy. We must get an appropriation, and that means delegates to the legislature. We have the law; but of what use is it with no funds to do the work? Are we going to fold our arms and let this malady run rampant through our State? We have a big job on our hands now, and it will be larger next year. Iowa beekeepers, don't stop and think, but think on the go, and don't think too long, and don't think the other fellow will do the work and you get the benefit. It may take a few sections of honey to defray the expenses now; but let it go and it means sections, supers, hives, bees, and all.

Mr. Frank C. Pellett, of Atlantic, made a request, through the columns of GLEANINGS, to the Iowa beekeepers to meet at Des Moines. A few responded, but not enough to organize. If we do not wake up now, our slumbers will be broken by that awful smell that comes from American foul brood. When I was at the National convention at Minneapolis last August I examined some American foul brood, and I imagined I could smell it on my hands all the afternoon, although I did not touch it at all.

I heard there was or has been a beekeepers' association in the west part of this State. If there is, we shall be glad to join it. I have not been able to locate it as yet. If any one can I will thank him if he will send me the address of the secretary; and if it is alive and in working order, I for one will join it and do what I can, and I believe I can get at least a dozen more to join. If we haven't an association in Iowa I should be glad to have all the beekeepers in this State who read this to write me and state their views, and also state what they are willing to do. If a few of us have to put our gloves and vells on and fight this appropriation through we shall have a hard time. Let all of us light up our smokers and get a rousing association in Iowa. If you have a representative or senator near you, or one you are acquainted with, go after him and the work will be easy.

Fort Dodge, Ia.

E. E. TOWNSEND.

[The following will show that a work has been started, at least.—ED.]

Iowa Has a Beekeepers' Association

On December 29 the Tri-state Beekeepers' Association met in Sioux City, and at that meeting the Iowa delegation organized the Iowa State Beekeepers' Association, with W. P. Southworth, of Salix, as president, C. L. Penny, of Lemars, secretary and treasurer. Three vice-presidents were chosen to boost the organization in their districts—Frank C. Pellett, Atlantic; Frank Coverdale, Delmar; and J. L. Strong, Clarinda.

As a committee on program for the next meeting, the following were named: C. L. Penny, J. B. Espy, R. A. Morgan.

Iowa needs the Association, and the Official Board will expect the enthusiastic co-operation of every beekeeper in the State, and each one is urged to send in his name and membership dues at once to the secretary, C. L. Penny, Lemars.

To be in harmony with the new constitution of the National Beekeepers' Association, when it is adopted, the membership dues are fixed at \$1.50 per year. Some may say that their dues are paid up in the National, and, therefore, they will delay sending their dues in to the State Association. Please do not do this, but send in your dues at once, and your membership in the National will be extended.

The new Association needs funds with which to begin work at once. The first business in hand will be to arrange for a big convention to be held at a time that will be most convenient for the largest number of beekeepers, when the organization will be perfected, and immediate steps will be taken to secure legislation to assist in checking the spread of bee diseases in the State.

No State in the Union can produce better honey than Iowa; and by mutual assistance the beekeepers can greatly increase their yields and improve market conditions.

Let every one interested in bee culture join the big cluster at once, by sending in his name and any suggestion that he has to offer.

Salix, Iowa.

W. P. SOUTHWORTH, Pres.

Clipped Queens a Nuisance

Mr. Arthur C. Miller's article, page 755, Dec. 15, on clipped versus unclipped queens, also the footnote asking for reports on this subject, prompts me to make reply. For the past forty years I have kept bees more or less. My home was in Northern Vermont until 1904, when I sold out and came to this coast. For about a year I was without bees; but being a wild-bee hunter I soon had some. This was in the suburbs of Portland, Oregon. At one time I bought 7 stands. One being queenless, I broke it up. I sold 11 colonies the following spring, so that my present yard of 78 colonies is practically all from the woods. When near Portland, being confined to a city lot, with tall fir-trees on one side and choice fruit-trees on the other, I resorted to clipping. I had tried it twice in Vermont, and both times had condemned it; but as location makes a difference in some respects, I tried clipping here for the third time. I saw no difference in the work of the queens, and never did in Vermont; but trouble came when swarming came. The swarms would generally settle. The limbs had to be broken off my neighbors' fruit-trees, or the tall firs had to be climbed just the same. The swarms were hived in various ways, as deemed best, sometimes on the returning plan. In case of others, the queen was placed among the bees, where they had settled. But the great majority of the swarms, after being hived a short time, would begin to return to the parent hive. On examination a ball of bees would be found on the bottom-board, surrounding the poor clipped queen. The bees seemed to know that the queen was maimed and could not fulfill her natural office, viz., to depart with the swarm to a new locality, and so they would not tolerate her. If a swarm returned to the parent hive before I could find the clipped queen, or in my absence, it meant sure death to return her. If I could find the queen quickly, and replace her in the cluster about as soon as it began to form, she would be received all right. But bees are hard to deceive, so I clip no more.

I lost all of my fine yellow queens which I had reared with great care the year before, and was en-

tirely out of the stock solely because of clipping. A clipped queen in a hive is a nuisance, because she can not help herself. If in manipulating the hive she falls to the ground, she can not rise and return. I have seen them under the bottom-board with a cluster of bees that had to be returned several times before she could be captured, because she would crawl off in the grass. When a swarm issues I always look for the queen in front of the hive. As a great many, although their wings are perfect, can not fly, they keep trying to do so, and crawl up on the grass until their weight bends it down. Thus they keep well up on the grass, and are easily found. The clipped queen simply crawls, and thus goes lower and lower in the grass, and is hard to find. An unclipped queen can be caged for a long time if the swarm does not return; and when it does she can be placed among the bees, and no harm follows. If the swarm returns she can be returned also, and will come out again next day with the swarm. Very few unclipped queens are lost in swarming except by mixing. I have had scarcely any bees leave me at swarming time. If I am absent they generally hang until I return.

I do not say that there was this wholesale slaughter of clipped queens in Vermont, although I lost some. It was a general superseding after clipping, not always immediately, but pretty sure to come. Treading on clipped queens while looking for them in the grass is another serious objection. I want my queens to be able to fly. Clipping is unnatural; and it has been my experience that it does more harm than good. I am a follower of nature, and am growing more confirmed in it.

Yacott, Wash., Jan. 1. H. E. HARRINGTON.

Shipping Bees to South America

Will you kindly furnish me information as to how to pack bees? When is the best time to leave with them from New York? Please give all the information necessary for the trip from here to South America.

Nashville, Tenn., Jan. 6.

F. L. GLISSON.

[We have never shipped any bees during cold weather, and therefore can not give you any information based on experience. Bees, however, have been shipped while it was quite cold. They have been hauled by sleds from one apiary to another; but in that case it is usually advisable to put them in some cellar rather than out on their summer stands, as the excitement caused by moving causes the cluster to expand too much, and the bees become chilled, causing many of them to die. It would be our judgment that it would not be practicable to ship bees to New York until along in the spring, when the weather begins to warm up. If you could once get them aboard the ship, we do not think there would be any trouble about sending them at any time of year.]

If you feel that you must ship the bees during midwinter in order to get them to South America in time for a flow of honey, we would advise you to have the frames securely fastened in the hive, using wired combs in any case, and screen the hive, top and bottom. But while the bees are being shipped by rail to New York in cold weather, it is advisable to secure the cover close to the screen. In other words, shut off the top and bottom ventilation, leaving only that which would be provided by the entrance, which should also be screened. The hives should be put in a car and loaded on to straw in such a way that the frames will be parallel with the track. It will be very necessary to see that the hives are securely fastened down, because, if the cars are bumped back and forth, the hives will be broken open and bees liberated. If you have more hives than can be accommodated on the bottom of the car, you can arrange to put series of planking or boarding above the hives that are already on the bottom, and put another tier above. In that case, leave about a foot or more of space between the two tiers of hives.

Taking it all in all, we would hardly dare risk the experiment of shipping a carload of bees during the dead of winter to New York. They might go through in good order, and they might not.—Ed.]

Regarding the Change of the California Foul-brood Law

P. C. Chadwick, of Redlands, Cal., page 39, Jan. 15, says that every one with whom he has talked or corresponded agrees with him that a more strin-

gent foul-brood law would be an excellent thing. I wonder whether Mr. Chadwick is familiar with the law of California, or whether it is a case of inspectors not doing their duty. The county board of supervisors of this State now appoints the inspectors, and every county has the right of an inspector upon a presentation of a petition. Generally the one they recommend is appointed. This same official can be removed by the same proceedings. Furthermore, most of the counties in Southern California have county ordinances for the further protection of the bee industry. Under the present law the beekeepers have the situation in their own hands.

If a State inspector can do better, let us have one by all means; but we must consider that California is a large State, and his doing all the inspection would be impossible. So it is a question as to whether we would not have the same inspectors after all, they holding the office as deputies. There is but one question in my mind: Do we want the governor to appoint our inspector, or shall we name our own as the law now reads? The State inspector, too, would be harder to reach than the board of supervisors.

El Centro, Cal., Jan. 26.

A. F. WAGNER.

Paper for Wrapping Hives in the Spring

Mr. E. D. Townsend:—Having read your books, I notice you use white felt paper for protecting hives in the spring. Can you tell me the trade name of this paper, and where I can obtain it? The only samples I have obtained are asbestos and deadening felt, and neither one seems right.

East Syracuse, N. Y.

F. W. LESSER.

[Mr. Townsend replies:]

We too have had trouble of late to get the same sheathing we bought five or six years ago, as the manufacturers seem to have adopted something besides the spruce that was formerly used in the manufacture of this white paper. Hereafter we shall use a tarred felt paper for wrapping our hives for spring protection. If the cover of a ten-frame hive is removed, and paper, although only 32 inches wide, is put next to the bees it will come within 2 inches of the bottom of the hive. On an eight-frame hive it will be about the desired width. If four lath are used in fastening the paper at the bottom, as we advise, two of them being 20 inches long, and the other two the length of the width of the hive, and a nice job of wrapping is done, so that the paper is not torn, and if there are no wrinkles at the bottom, no heat to speak of can escape from a colony except at the entrance. On account of the molding of the handle extending at each end of the hive, we fold the paper at those corners of the hive. In this way an allowance can be made for this projection when folding.

We cut our papers 38 in. long, on account of the hand grips taking some extra paper. Otherwise 36 in. would be the right length to make the end and sides come even at the bottoms.

Now about the paper to use. If you will turn to Sears, Roebuck & Company's fall and winter catalog, page 600, bottom of first column, you will find three weights of tarred felt. No. 1 has 250, No. 2 has 400, and No. 3 has 500 square feet to the roll. The price a roll, 90 cents, is the same for any one of the three kinds. We have so far used the No. 2 felt, but will try some of the No. 3 this year. If the No. 3 is tough enough to stand putting on without tearing, it will be warm enough, without a doubt.

After this severe winter, many unprotected bees will be dead. Others will be between medium and good. It will be desirable next spring to foster these "weaklings," and papering will be found the most simple method, and the equal of any packing for spring protection.

Remus, Mich.

E. D. TOWNSEND.

Annual Meeting of the Oklahoma Beekeepers' Association, Stillwater, Jan. 18, 1912

There were present the smallest number of beekeepers that have ever attended a meeting of the Association; but nearly every number on the program was filled, either by the party being present or sending in his paper.

It was voted not to become a branch of the National Association at present, and the membership fee was reduced to 50 cents. The following resolutions were adopted:

Be it resolved by the Oklahoma Beekeepers' Association, that the A. and M. College and Experi-

ment Station be requested to carry on more experiments along apicultural lines, to determine the best race of bees, the most useful hive for the farmer beekeeper, the best manner of feeding bees, and also to experiment with different honey-plants.

We also request that an apiary be established at the College, and some help by lectures and exhibits on some of the future demonstration trains be given.

N. FRED GARDINER, Pres., Geary,
GEO. H. COULSON, Vice-pres., Cherokee,
G. C. BOARDMAN, Sec., Shawnee,
G. E. LEMON, Treas., Nash.

Ten Questions and Answers

1. In a bee-cellar, where should the thermometer be placed—at the bottom, top, or middle, to mark the required temperature of 42°?
2. In making nuclei, what is the best way to build them up to become strong colonies?
3. Do you approve of metal sheets for covers to hives? I have found that they retain moisture in great drops on the under side; or is there a way to overcome the moisture?
4. Is it all right to breed virgin queens to drones of the same hive?
5. What is the great objection to natural swarming?
6. Do the Italian bees excel all other species in working on red clover?
7. Do bees work continually, or take a rest after each load?
8. Just before uniting two colonies by alternating their combs, should they be smoked, and the selected queen caged and destroyed?
9. Is ripe alsike clover injurious as a feed for cattle because of danger of poison from the seed?
10. Which is the better to use for coating the inside of wooden feeders—paraffin or linseed oil?

Slate River, Ont., Jan. 20. J. M. MUNRO.

[1. We usually hang the thermometer in the middle of the cellar about half way between the lowest and highest hive of bees. In a good bee-cellar you are not likely to find as much difference in temperature between the floor and the ceiling as in a room where there is artificial heat, for instance, and where there is outside exposure.

2. We regard the Alexander plan for making increase as rather the best, all things considered; for the weak nuclei, being kept over the strong colony, have a better chance to keep warm and to breed up properly.

3. We do not approve of sheets of metal for covers of hives unless there is wood underneath. If we understand the type of covers you refer to, there is no wood lining. In that case you should use a thin cover underneath, known as a super cover.

4. If inbreeding were kept up very long, it is likely that the stock would degenerate. But there is not much danger of this; for unless you are in an isolated locality several miles from bees in beehives, etc., you can not be sure that your virgins are mating with drones from the same colony they were reared in. Even under the conditions named you have to keep drone-guards over all other colonies if you wish to prevent the virgins from mating with other drones.

5. A certain amount of natural swarming is not objectionable in the least if some increase is wanted any way, and if the swarming is not kept up to such an extent that the strength of the colony is reduced so that less surplus honey is produced. Some strains of bees will swarm excessively. Some of the largest producers that we have ever known have said that they do not object to natural swarming; but they do object, of course, to after-swarming. Where the bees want to swarm, however, as soon as the colony becomes strong enough to work well in the supers, so that super work is retarded, then the trouble begins.

6. Some Italians excel all other bees in working on red clover; but it would not be true to say that all Italians do.

7. It is impossible to give a definite answer to this question, as it is likely that bees rest more or less, although we are not quite ready to believe that they rest after every trip. At a time when one can hear above all else the roar of bees working feverishly on the flowers during a good flow of honey, it seems impossible that there could be very much resting going on during the height of the work of the day.

8. We do not advise the plan of uniting that you

refer to here. It is better to have the bees unite very slowly, so that they hardly know a change has taken place. Placing one colony over another with a newspaper between is a good way. In either case it is well to kill the inferior queen first and then cage the other.

9. We have never heard that ripe alsike clover is injurious to cattle. We can not say positively; but we doubt whether there is much foundation for such a theory. If any of our readers have reason to think otherwise we should be glad to have them report.

10. Paraffin is rather better for coating the inside of feeders, as it has more body, and is more likely to prevent leaks.—ED.]

No Difference in Laying, Whether Queens are Clipped or Not

For the last five years I have clipped every laying queen I owned, and will continue to do so as long as the results are as satisfactory as they have been. I do not see the slightest difference between the laying of clipped and unclipped queens, as Arthur C. Miller outlines, nor do I see that they are handicapped in any way, for I have had clipped queens reach the age of four years. There is only one season of the year when I hesitate to perform the operation, and that is from the middle of February to the first week in March (that is, here in the South), for at that time there are so many old nursing bees with a very cranky disposition; and with the least indication that the queen is not acting normally they will attempt to ball her.

Elmendorf, Texas, Jan. 19. ALFRED L. HARTL.

Buckwheat Yielding Differently on Clay and Sandy Soil

Regarding the article on p. 713, Dec. 1, "Why Buckwheat Yields only in the Morning," if I am not mistaken it usually yields honey nearly or quite all day on sandy soil; but on clay or even clay loam, it seldom yields in the afternoon. The quality, too, is better on sandy soil.

From fifteen to twenty years ago there was a good deal of buckwheat raised near my yard in the northern part of Sauk County, Wisconsin, and I often took as much as 100 pounds of nearly pure buckwheat honey (extracted) from a single colony. I think some years the yard averaged that much. We get but little there now.

Veedom, Wis.

E. M. HAYES.

Information Wanted on Producing Honey in Diseased Apiaries

There are many articles on curing foul brood, but only occasionally one on raising honey where the disease exists. We need good articles on systems of keeping bees healthy and raising extracted honey where the disease does exist. It is done. There are beekeepers in Utah who raise it by the carload in locations one-fourth to a half diseased.

North Yakima, Wash.

V. V. DEXTER.

[This is an important question; for with European foul brood especially, it is almost impossible to get entirely rid of the disease at once; and if it gets into the locality, it is bound to keep cropping out to some extent for several years, although it can be kept well under control. We shall be glad to have our readers give us the benefit of their experience along this line.—ED.]

How Could Bees Separate Water from Syrup so Quickly?

In my article for Dec. 1, p. 717, I wrote about "little drops falling like rain." Dr. Miller and the editor, p. 4, Jan. 1, joined in saying that it was "water separated by the bees from the syrup." I do not care to question authority as good as this, but at the same time it gives rise to several questions in my mind that I should like to see answered for the good of the readers.

1. How long a time is required after a bee has taken up the syrup before it will be able to throw off the water? Those drops were falling all the way between the tub where the bees were feeding and the hives, six or eight rods away, but to a great extent near the tub, or before the bees could rise over the brim.

2. Was this water separated from the syrup while being taken, or after it had entered the honey sac?

3. We often notice after a rain during a flow of honey that nectar is very much thinner than at other times. Why does this filter not work at such times rather than force the bees to carry to the hives a large surplus of water that must be evaporated later?

4. In giving bees a rough handling until they have gorged themselves with honey, how often do we find them regurgitating it over themselves, forming a sticky mass?

This process, I understand, represents an abnormal condition; but so is feeding from a tub unusual. Furthermore, on the grass all around the tub were scores of bees that I supposed were reclaiming the sweets that had been lost. I may be mistaken in this, but will try an experiment in the spring to make sure. I am satisfied for the present with what became of my 500 pounds of sugar. Moistened sugar for stimulative purposes and heavy syrup fed quickly for winter stores (both fed in the hive) suit me; and if I should try feeding in the open air again it would be with moistened sugar spread over a large surface.

Hartford, Ct.

A. W. YATES.

[1. The bees we have observed, eject the water ten or twenty feet from the ground after they arise from the outdoor feeder. Sometimes the spray is shot out when the bees are forty to fifty feet from the point of starting.

2. We do not know how the water is separated. The sweetened water they take up from the feeders may go into the honey sac or stomach, and the excess of water pass through the alimentary canal, and finally out at the anal opening; or the excess of water may be regurgitated and discharged from the mouth. It will be very difficult to determine just how the bees do it; but it is remarkable that such a fine spray should be shot out immediately after taking flight.

3. We do not know.

4. We have never noticed the bees regurgitating the honey over themselves when roughly handled; or, rather, we should say, we have never handled them so roughly that they have ever done this. We were not aware that rough handling of any sort would cause them to regurgitate the contents of their honey sacs or stomachs on themselves.

Referring to your last paragraph, we have no absolute means of knowing whether the spray discharged by the bees while in the air is water free from saccharine matter or sweetened water that is an excess of what they can carry. As the bees shoot out this spray when gathering nectar from the flowers as well as from feeders it would hardly seem to us that nature would be so wasteful that she would throw away sweetened water or nectar. In other words, it is our opinion that a bee is an economical machine. The principle of the survival of the fittest has made it so, apparently.

A. I. Root, some years ago, collected the spray that the bees shot out when they took wing while they were working on the spider plant. This spray was caught on dinner plates; and, so far as he could determine at the time, it was nothing but water, while the nectar from the spider plant, which he gathered with a tiny spoon, was distinctly sweet. Last fall we gathered on our hands some of the spray the bees shot out. On tasting it, it seemed to be nothing but water. However, it *may* have contained some saccharine matter. This is a matter that will have to be worked out by other observers. At all events, the spray such as we saw was thrown over the leaves and shrubbery near the outdoor feeder. The fact that our bees did not go after this after the feeders were emptied, and the further fact that it was evaporated without leaving a deposit, would seem to indicate that it was only water.

The bees that you found on the grass around the tub, we should be inclined to think, were those that had overgorged themselves and were unable then to take wing. Years ago, when our bees worked on the spider plant that gave such copious quantities of nectar, some bees would take such big drinks that they would drop down on the ground, apparently because they were overloaded. Presently they would take wing and away they would go.—Ed.]

Bees Eject Water when Fed Maple Sap

I have supposed or taken it for granted that every one knew that bees eject water when carry-

ing very thin nectar. Chip a maple, blackwalnut, or any tree that has a sweet sap, or give bees water slightly sweetened, and stand between them and the sun while they are carrying it home, and you can very distinctly see them eject water.

MOTHER AND DAUGHTER TAKING TURNS.

I raise my best queens from an old queen when I put her off by herself with a few bees and a single frame of brood, and let the bees supersede her. For some time the mother and daughter will occupy the same comb—the former laying once in a while an egg, while the latter will work very industriously laying eggs. I usually find them about two inches apart, and they appear to keep about that distance habitually.

THREE-WHEELED CART.

I do not like a wheelbarrow for handling honey nor for any other purpose about a beeyard. I use a three-wheeled cart with springs. I had it made at South Bend, Ind., and shipped to me as freight.

MOTHS IN COLORADO.

Don't you let them make you believe that bee-moths are unknown in Colorado—both kinds too. Just lease a ranch to some Easterner who thinks there are none, and by the end of the season you will be able to find plenty.

Carlton, Col., Feb. 5.

JAMES H. WING.

Production of Extracted Honey Much More Profitable than Comb

Referring to the editorial, page 35, January 15, I will say that it does not pay us to ship any comb honey to market, except the fancy and No. 1 white. At the same time, there are so many unfinished sections that have cost us about as much to produce as the good grade that the profit in comb honey is almost wiped out, since we are obliged to accept practically extracted-honey prices for these culls. When it comes to dollars and cents, extracted honey has comb honey beat a mile. We can produce almost 2½ pounds of extracted honey to one of comb. In this country we are just finding that extracted honey is much more profitable.

Wyoming.

WINFIELD MARTIN.

Dampening 500 Sections Without Swelling the Wood

Remove the boards on the top side of the crate holding the sections and gently shake the loose sections end down until all of the V grooves are opposite and even. Drive two long sticks as wedges down to the bottom of the crate on one side so that the faces of the sections are tightly wedged together, and no water can reach them. Pick up the crate endwise and immerse it in a tub of water. The water will run through the open grooves, wetting them thoroughly, leaving the surfaces dry. Only one immersion is necessary, and the crate should be placed so as to drain at once. If kept covered the sections will stay damp all day, even in a dry climate.

Bakersfield, Cal.

L. C. CLARK.

Honey Cures Sick-headache

I have been informed by Captain Geo. H. Whiteside, a very prominent citizen of Apalachicola, also manufacturer of ice there, that he has been cured of sick-headache by eating honey twice a day. His headache was so severe that he had to go to bed, sometimes for several days. You may rest assured that this comes from a man who stands high among the people of this State, and from one who is a Christian gentleman,

Sumatra, Fla.

A. B. MARCHANT.

Clipping Queens of Prime Swarms.

I follow the practice of clipping queens, and am not troubled much by superseding; but I always avoid clipping the wings of a queen in a colony that is working well and is in normal condition.

Webster Springs, W. Va.

L. S. WEESE.

Pyrrox fills the barrel with the apples that used to be on top. Write BOWKER INSECTICIDE CO., Boston, for book.

POULTRY DEPARTMENT

A. I. Root

STILL ANOTHER "BIG DISCOVERY;" HOW TO "GROW" YOUR OWN BUTTER ("AS WELL AS EGGS") IN YOUR OWN BACK YARD.

Our friend Philo certainly made a big stroke in introducing a short cut between "producer and consumer" when he made "a little poultry" in the back yard so much the fashion; and in spite of his fearful exaggeration at times, I think we can give him a vote of thanks; but I presume it never entered his mind that his "system" would give *butter* as well as *eggs*. Well, just listen. Mrs. Root wanted a hen for dinner; and as the Leghorn yard contains the oldest hens I went to this yard after dark and sampled a dozen hens by feeling of their pelvic bones to see which were the layers, until I found one very fat and plump, with the said bones very near together; and as a further precaution I shut her up alone for a week; but, as I expected, she never laid an egg. When she was killed there were no eggs anywhere near maturity; but she was literally a great lump of fat. When "tried out" there was over a pound of nice yellow "chicken oil." I suggested using it for butter; and by salting to taste I find it suits me even better than the butter that now costs us 50 cts. at our grocers. In consequence of the recent high prices for butter, many are using cotton-seed oil, others oleo, and Terry uses olive oil, even if it does cost away up, because he thinks it even more wholesome than cows' butter. Now, why in the world can we not utilize this chicken fat, especially when all we can get in the market is about 15 cts. per lb. for our fat chickens—sometimes a good deal less than that? Once more, we talk about the high price of grain. Isn't there money in feeding grain to chickens when, by using this fat in place of butter, it nets you 50 cts. per lb. or more? Once more, where we keep feed right before our chickens, as I do (in galvanized tubs hung from the roof), there will be now and then a hen, even with the Leghorns, that gets too fat. When this occurs, just sort out the suspected drones, as I have outlined, and make them take the place of butter. By the way, every little while somebody wants my opinion of the "Potter system." This system is a *help*, as I have outlined; but I very strongly object to the way in which Potter does business. The price for his little book is an outrage. His secret has been published over and over, and his requiring a signed pledge "not to divulge," etc., is ridiculous. I have two or more copies of the book; and when I sent the money for the book, but *refused* to sign my name to the pledge of secrecy, he or they signed my name to the pledge without any authority at all from me. What do you think of such a way of doing business? Finally, the discovery is *not* Potter's at all. It is simply the *Hogan* \$10.00 secret of years ago. Never mind the secret or secrets; let

us all get to work and grow our own butter in the back yard—at least until butter gets down a little from off its present "high stilts."

INFERTILE EGGS, AND HOW MUCH HAS THE INCUBATOR TO DO WITH IT?

Feb. 9, at ten o'clock A.M., I put 63 duck eggs into the incubator; and finding a sitting hen when gathering the eggs, at dusk, I took 13 eggs out of the incubator and placed them under the hen. I did this to satisfy myself in regard to several matters pertaining to incubation. Well, after six days I tested all the eggs, and, to my great surprise, I found ten infertile ones out of the fifty in the incubator, and not a single one under the *sitting* hen. Every egg of her 13 showed plain and clear marks of fertility. What have incubator manufacturers to say to this? So far as I can remember, no vender has ever advertised his machine would give as many fertile eggs at the time of test as a sitting hen. If 20 per cent of all the eggs incubated are (with incubators) thrown out as infertile, is there not a big argument right here in favor of hens that has not been properly considered?

Last winter I had two or more hens that hatched every duck egg given them, and this winter I have had two hens bring off eleven ducks each, from eleven fertile eggs. There is at present (at least down here in Florida) a big complaint of eggs for the incubator being infertile; and this recalls to mind the down-east "secret" of starting all eggs under hens before placing them in the incubator. No doubt it would give excellent results if we could get enough hens to sit all at one time. This calls to mind the remark made several times recently, that the first week of incubation decides at least largely the outcome of the hatch. To test this I took thirteen eggs that a hen sat on, "off and on," for two or three days, and then "threw up the job." On testing them out I could not discover that they were in any way hastened along, or looked different from eggs that did not have this irregular heat for that length of time. In the first paragraph above I should have stated the incubator eggs showed larger and stronger germs than the eggs under the hen, indicating, probably, that I gave the eggs more heat than did "biddy." Could this explain the lack of fertility?

FIRELESS COOKERS, FIRELESS BROODERS, ETC., AND, FINALLY, THE "FIRELESS AEROPLANE."

By the way, when I spoke some time ago about a fireless *incubator*, several friends took the trouble to explain to me about a hot-water incubator, and called it *fireless*. Now, this is not only very old, but it is in no sense fireless, as you have to have a fire to heat the water, and a lamp is ever so

much simpler and less trouble. Now about the fireless aeroplane: My attention has just been called to it by the following, which I clip from the *Cleveland Plain Dealer*:

The Wright brothers announce the completion of a fireless aeroplane. Anybody can fly now—there's no danger of being drowned if one wears a cork belt, and why be hanged if you have a good lawyer? And now that one can't get burned up while flying, immortality is assured.

We don't know how much of the above is newspaper pleasantries and how much is truth; but the clipping calls to mind that I have neglected, until just now, to thank the kind friends who sent Christmas greetings to Mrs. Root and myself about the first of the New Year; and, while thanking you all, I want to tell you that I feel a lot of pride in pointing to a neat booklet on our center table that contains inside the following:

1911-1912

A MERRY CHRISTMAS AND A HAPPY NEW YEAR

WILBER WRIGHT,
ORVILLE WRIGHT,
KATHERINE WRIGHT.

When I go back to Ohio in May I am planning to go and see that "fireless" and then I can tell you more about it.

GRAPE FRUIT FOR RHEUMATISM.

I have before mentioned that grape fruit alone gave me almost immediate relief from a kidney trouble that had been afflicting me more or less for years. See the following:

A WONDERFUL FRUIT; MOST VALUABLE OF ALL.

Last month we mentioned that the grape fruit would cure rheumatism. We thought that this fact was universally known in Florida, but it seems that many of our people right where the grape fruit grows did not know that a most complete and sure cure grew right at their hands. The editor was a great sufferer from muscular rheumatism and sciatica, and it departed years ago. We do not hesitate to say that, if properly taken, and *only* if properly taken, the use of grape fruit will cure any case of rheumatism that can be found. It is nature's cure. The fruit must be eaten without sugar, or juice can be taken by a reamer, such as is used for extracting lemon juice, now made and sold generally for grape fruit, being larger. Take freely of the fruit or juice, from the fruit with a spoon, preferably every morning before taking other food. In severe cases it may be well to take before each meal. Take fresh fruit. Do not think that a half of a stale fruit is of any benefit. Many who come to spend a winter in Florida with rheumatism can go back north free from the disease. But they rarely ever want to go permanently. This recipe is not copyrighted.—*Modello Tropical Topics*.

Kind Words From Our Customers.

Dear Mr. Root:—We read the Home papers first. The notes on temperance indicate an individual who is not afraid to fight for the right. Our home city, Knoxville, is a dry town. Our Tennessee cities and towns would all be "dry" if the law were not flagrantly and openly violated.

Louisville, Tenn., Nov. 20. SARAH A. RULE.

LOOKING FOR A CHANCE TO GET "A CRACK AT THE SALOONS."

I have been a subscriber to GLEANINGS for two or three years, and I am a friend of the bee, but looking all of the time for a chance to get a "crack" at the saloon. That God may bless you in your fight against intemperance and all other evils is my wish.

Cranbury, N. J., Oct. 9. OLIVER CROSHAW.

BEEES AND RIGHTEOUSNESS.

A little over one year ago I knew nothing concerning bees. I became interested, and purchased one stand. They increased to three stands last summer. They wintered outdoors well, and now number five stands. They are a great pleasure to Mrs. Porter and myself, even if we received no profit other than the study of their lives and to work with them; but they will much more than supply us with honey.

We look forward to the coming of GLEANINGS to our home anxiously, and read it with great pleasure and profit. The Home department is especially interesting to us, and alone is well worth the cost of GLEANINGS. The stand you have taken on the liquor question, the instructions and advice, the application of God's word, must come from one led by the spirit of true patriotism and of Christ.

Byesville, O., July 12. H. C. PORTER.

"GOT THESE BEHIND ME, SATAN."

Mr. A. I. Root:—After reading your talks for Aug. 1, wherein you give your experience with the railroad agent, I feel I must tell you of a similar experience I had. When I was a boy, money was very scarce with me, so the temptation was that much stronger. I was walking along the road one day, and a little negro boy was just in front of me when I saw him drop a ten-cent piece. I picked it up and asked him if he had dropped any thing. He said no, so I put it in my pocket. As nearly as I can remember I kept it about a year. I could not stand it any longer, so I gave it back to him. A few years after that I went into a store in my home town and bought a dime's worth of something, and gave the clerk a fifty-cent piece. He gave me back 90 cents. There was the old tempter again. I took the money and walked out of the store. But the next day I carried it back to him. A few years after that I was in Richmond, Va., and wanted to go to a place on the James River. The fare was \$1.40. I gave the agent a \$2.00 note. He handed me back \$3.60. The tempter had left me then. I did not touch the notes, but took up the 60 cents and said, "That was a two-dollar bill I gave you." He appeared very much embarrassed, but said, "I am very much obliged to you." I know what it is to be a Christian, and I would not give it for all of the riches in the world. I know you are a busy man, and I don't know that you will read this; but I felt as if I must tell you about it.

R. Z. SCLATER.

"MARCHING ON."

I want to confess to taking, without your permission, from your excellent magazine a part of an article which appeared some time ago in regard to the amount of spirits consumed in the United States, and including it in an article I wrote for the *Baptist Record*, of Peella, Iowa. However, I gave you credit for what I took. Now tell me what's to pay.

One thing more. I notice in GLEANINGS, Oct. 15, you refer to John Brown as a martyr. Now, I want to say that I had two brothers with John Brown at Harper's Ferry. One was sacrificed to the Moloch slavery in Virginia, and the other afterward in Missouri. It does me good for this reason, and because he has been so misrepresented by historians, to hear John Brown spoken of as a martyr.

Again, I have read with much pleasure and profit your lay sermons, and hope to read more of them. I have been preaching the glorious old gospel myself for almost half a century; and the older I get, the more precious it seems. I am especially pleased with your warfare against the saloon. It seems to me the time has come when every lover of righteousness should speak out against this evil of all evils.

Shall tongues be mute when deeds are wrought

Which well might shame extremest hell?

Shall freemen lock the indignant thought?

Shall pity's bosom cease to swell?

Shall honor bleed? shall truth succumb?

Shall pen and press and soil be dumb?

No! by each spot of haunted ground

Where freedom weeps, her children fall,

By Plymouth Rock, by Bunker's mound,

By all above, around, below,

Be ours the indignant answer—no!

Chambers, Neb., Sept. 29.

J. C. COPPOC.

Gleanings in Bee Culture

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Editorial

MR. WESLEY FOSTER, in this issue, has a very fair article on honey-crop reports that is well worth reading.

E. R. ROOT left for Bradentown, Fla., March 4, and expects to return to his office on the 29th of the same month. This will explain why the answer to some of his letters may be delayed until his return.

THAT TOBACCO ARTICLE

In publishing the tobacco article as given on page 162 of this issue, it is not our purpose to boom or sanction an industry which we do not approve, but to show how bees pollinate the plant. In doing this we merely wish to show that if bees can pollinate what we consider to be of no real economic benefit to man they can also pollinate a plant that gives real life and health to both men and women.

EXTRA-LARGE EDITION OF OUR HORTICULTURAL NUMBER

WE are printing an extra-large edition of this special number on "Bees and Fruit," and if beekeepers will send us a list of the names of fruit men in their vicinity who might be helped by the educational articles on fruitgrowing published in this number, we shall be very glad to send them a copy without charge. In this way we hope to help the beekeepers themselves as well as the fruit men.

THE INCREASING DEMAND FOR BEES IN ORCHARDS

ELSEWHERE in this issue Prof. H. A. Surface, Economic Zoologist, Harrisburg, calls attention to the fact that there is an increasing number of orchardists who are asking to have bees located among their trees. Mr. N. E. France, General Manager of the National Beekeepers' Association, who has traveled extensively, finds that the fruitgrowers over the country are either buying bees and putting them in their orchards, or are offering the free use of their orchards to beekeepers if they will only put their bees there. In most cases beekeepers will do well to hunt up the fruitgrowers and inform them of the important work performed by bees in pollinating their trees. This should

be done at once. By so doing good locations may be secured free of cost.

SEASON PROSPECTS

IT is still too early to give any thing like a definite summary of the few reports on wintering that have come in. However, at this time it seems safe to say that the colonies in the northern States that were in good condition in the fall, and that were packed well out of doors, or wintered in good cellars, will come through without much loss. In those parts of the country where the winters are not usually severe, there seems to be quite a heavy loss, owing to the beekeepers having been taken unawares by the extreme cold. We may be mistaken; but at this date, March 11, it looks as though there might be a somewhat greater mortality, the country over, than usual.

The rain, so long delayed in California, came at last; but the general feeling is that the prospect of a honey crop is very doubtful outside of the irrigated districts, on account of the fact that sage and other honey-producing plants have made no growth owing to the very severe drouth.

In the South, the conditions in general seem to be normal, although in the southwestern part of Florida one-half to two-thirds of the colonies are dead. In the eastern and central part of the State, conditions are much better. Those in Georgia and those throughout the cotton belt, in fact, are in fine order; but those in other parts of the South, not near the cotton belt, are in rather poor condition, owing to the drouth during the latter part of the summer. In the clover regions of Mississippi and Alabama the bees are in good condition. Reports from the Carolinas indicate that there has been no more loss than usual.

Most of the few reports that we have from Illinois indicate rather heavy losses, although when the full returns are in, a summary of the whole state may not reveal serious losses. Scattering reports from other parts of the country do not show any thing very definite as yet. This winter has emphasized most plainly the importance of having the colonies headed by young, vigorous queens that will make certain a good proportion of young bees in the fall.

ORANGES AND BEES

THE cover design of this issue shows a beautiful orange tree in what is known as the Sespe apiary, belonging to Mr. J. F. McIntyre, of Ventura, Cal. The hives of bees are shown under the trees in the background, while the orange tree in the foreground is loaded with fruit. We regret that we are not able to show the beautiful color values of the oranges and the dark glossy leaves in contrast.

It might be interesting to recall that this apiary has, or did have, at least, something like 500 colonies in it. There seem to be only two yards in the United States that have as large a number of bees in one spot as this. The other apiary to which we refer is the Alexander yard, located at Delanson, N. Y.

The bees at the Sespe apiary work on the orange bloom in the immediate vicinity, and on the mountain sage when it yields. In this particular case, bees and fruit, or, if you please, bees and oranges, go well together.

HARD CANDY FOR WINTER AND SPRING
FEEDING; HOW TO MAKE IT

INTO a dish of hot water on the stove slowly pour an equal amount of sugar, stirring constantly. Make sure that the sugar is all dissolved before boiling commences. If this precaution is not observed, some of the undissolved sugar is likely to burn, injuring the flavor of the candy and almost surely causing trouble with the bees later. If you have a candy thermometer, watch the temperature, and do not let it go above 275 to 280 degrees. Test frequently by dropping a very little of the syrup into cold water (about 50 to 55 degrees F.). When the boiling has continued long enough the drop of candy, when cooled in the water, should be hard and brittle when taken out; but when placed in the mouth it should soften slightly, so that it is tough. When this time has arrived, pour the syrup immediately on to paraffined or waxed paper on a table. Have the table perfectly level, and around the outside of the paper put wooden sticks $\frac{1}{4}$ -inch high to confine the syrup and prevent it from running off. When the candy is nearly hard, cease it or cut it with a heavy knife so that it may be broken up into right-sized squares when hard.

The color of the candy when cold should be about that of light basswood honey. If it is darkened very much it is scorched and unfit for the bees. To prevent the scorching, reduce the fire toward the last so that the syrup will boil but slowly.

When the candy is first made, it is hard and glassy, and perfectly transparent; but after it stands for a little time it becomes somewhat watery and crystalline; but this is all the better so far as the bees are concerned, for they are enabled to take it more easily.

The thin cakes of candy being only $\frac{1}{4}$ inch thick may be placed over the frames

and under the regular cover, and in this way a colony saved that would otherwise be lost. The feeding of syrup, especially in the spring, is apt to cause great excitement and possibly robbing, and for this reason the candy is safer because it takes it slowly.

BEES WORTH A HUNDRED MILLION DOLLARS
AS POLLINATORS

HAVING occasion recently to deliver a talk on the relation of bees to horticulture, at the Ontario Agricultural College, Guelph, Canada, we made the statement that bees produce annually \$20,000,000 worth of honey; but that their economic importance to the fruitgrower and the consumers of fruit in this country could be measured by five times that in the production of more and better fruit and better crops. After we had concluded our talk we asked the botanist who heard this talk if this statement, in his opinion, was too strong. He very promptly replied that it was not.

Neither the beekeeper nor the fruitgrower fully realizes the important work the bees perform in pollinating fruit-blossoms throughout the country, especially the finer fruits such as plums, cherries, peaches, pears, and most apples. There are very few fruit trees that are self-pollinating. Charles Darwin made the statement that nature abhors self-pollination. As bees, in most cases, are about the only insects that are in the air at the time most of our trees are in bloom, it follows that they are the main sources of cross-pollination. Fortunately, our best horticulturists and fruitgrowers are to-day the bees' best friends. It is only the narrow-minded and the uninformed who complain of the bees being a nuisance in orchards and vineyards. The overripe and otherwise imperfect fruit from damage or otherwise should be picked off early and marketed locally rather than to hang on the trees, or, worse yet, lie on the ground in a half-rotted condition, attracting the bees.

The only time that bees are said to be a real nuisance is when cut fruit is placed out to dry in California and elsewhere. It may be questioned whether it is best to put out fruit to dry in some places subject to disease-laden germs of all sorts. It would seem that legislation should properly safeguard the outdoor drying; for why should we eat dried apricots and prunes that are coated with dust? We have been in *some* (not all) fruit-drying ranches in California where the dust was flying in all directions. If some of our Eastern consumers could see the way this fruit is exposed they would say better by far that the bees should eat it *all*, rather than have it placed on our tables laden with disease-bearing germs.

BEES AND GRAPES

COMPLAINTS seem to be increasing of how bees "eat grapes." In every case that has come under our observation we do not know of *one* where the bees were the real and pri-

mary cause of the damage to the fruit. We would call attention to the excellent reply to a correspondent by Prof. H. A. Surface, Economic Zoologist, Harrisburg, Pa., on this subject, in this issue. See page 158. Prof. Surface is one of the best authorities in the country on the relation of bees to horticulture. He has conducted some thorough experiments, and furthermore is an entomologist, zoologist, fruitgrower, and beekeeper. What he has to say in this issue should be given some weight.

We find that the Cape May warbler (*Dendroica tigrina*) is the real culprit, and not the bees, in this locality at least; and we have reason to believe that in many others the small holes made in the grapes attributed to the bees are made by these birds that come on early in the morning. They run their beaks into every berry in a bunch. Instead of using up one berry they make a single hole in every berry, thus ruining the whole bunch. Indeed, they will go over a whole vineyard in that way. As one is not usually up at that time of day, the birds are not discovered. The bees come along about eight o'clock, and, of course, run their tongues down into the holes made by the birds. The bees are caught in the act; and after they leave, these small holes are discovered. The natural conclusion is that the bees are responsible for the whole trouble. Beekeepers should take pains to inform their grape-growing neighbors about these birds.

PUBLIC SENTIMENT GROWING AGAINST THE SPRAYING OF FRUIT BLOSSOMS.

In any locality where there are fruit-growers so behind the times, and so ignorant as to insist on spraying their trees while in bloom, it is a good plan to create a public sentiment against the practice. The leading experiment stations and horticulturists in the country are now very explicit in their condemnation of blossom-spraying, so there is no lack of evidence, even from a fruit-grower's standpoint, showing that it is a bad plan. One way of creating such a sentiment is to get the editor of the local paper to accept an article that is at once interesting and readable, and yet full of proof that fruit blossoms should not be sprayed.

One of our subscribers, E. L. Dresser, of Ithaca, N. Y., who has had considerable trouble along this line, was at last stung into action, and he sent to the *Ithaca Daily Journal* a statement in which he spoke his mind on the subject. We have not room for the whole article, but we give herewith parts of it to show what can be done:

To the Editor of *The Journal*:—A short time ago our sensibilities were shocked by the accounts of a mother who poisoned her child by compelling it to drink carbolic acid. So outraged was the public, that, when the woman was taken to Albany for trial, mob violence was feared, and a special force was called out to guard the prisoner from the station to the jail.

Yet within our own "Biggest Little City" last summer thousands of little lives were destroyed by poison, no account of which reached the papers, nor was it of any seeming consequence save to a few interested parties.

The honey-bee is the friend of humanity. Not only do these little gatherers produce annually thousands of tons of the most delicious and healthful sweet known to man, but in their quest they pollinate the flowers, and thus multiply by many bushels and barrels the fruits and vegetables to the enrichment of the producer and the benefit of the consumer. Thus the honey-bee is a friend not only to the orchardist and fruitgrower, and every one who has a fruit tree in his yard or a vine in his garden, but to the whole human race.

After many careful experiments at both the State Experiment Station and the Cornell Agricultural College, the conclusion was reached that, to spray the fruit trees when in bloom, is a positive damage (see Experiment Station Record, Vol. 13, p. 364).

As a result, the Legislature passed the following law:

"Any person who shall spray with or apply in any way poison or any poisonous substance to fruit trees while the same are in blossom is guilty of a misdemeanor punishable by a fine of not less than ten nor more than fifty dollars, etc." (see Chap. 171 of laws of 1900).

C. E. Layman, of Troutville, Va., in an article in *GLEANINGS IN BEE CULTURE*, March 1, 1911, says: "I have had a great deal of experience in the spraying of fruit, and have watched some of my neighbors frequently who persisted in spraying while trees were in bloom, and in nearly every instance their fruit was damaged more or less, while my trees, which had not been sprayed until after the bloom dropped, were full of perfect fruit. There can not be any doubt about this point in my mind, as has been so thoroughly demonstrated in this section."

An extensive orchardist of Washington writes in the *Pacific Homestead* of last October: "I am satisfied that most orchard men do not realize the importance of proper cross-pollination of their fruit. Inasmuch as the bee is practically the only insect flying at the time apple trees are in blossom, their chief reliance must be placed upon it. While wind does carry pollen to a certain extent, many experiments have shown that it is only to a slight degree. It will pay the fruitgrower to keep bees to pollinize his fruit, or at least he should be willing to encourage some of his loving neighbors to keep them."

Mr. Terry, president of the Vermont Horticultural Society, in a recent public address said that in Grand Isle Co., where are located some of the best orchards in the State, he and another party examined every orchard with great care to discover if possible the cause of failure in some to produce as heavily as the others.

The results of examination showed in every instance that, where there were failures to produce abundantly, there were no bees, or too few to be of much use; and further, that, where a good supply of bees was kept, there was in every instance a large apple crop.

Ithaca, May 1, 1911.

E. L. DRESSER.

Another way to create public sentiment is to have some good speakers at farmers' institutes, horticultural-society meetings, etc., to present the matter and show the good work that the bees do, as well as to make it clear that, even from a fruitgrower's standpoint, blossom-spraying is not advisable. The following clipping from *Successful Farming* illustrates just what we mean:

THE AID OF BEES IN ORCHARD WORK.

At a recent meeting of the Vermont Horticultural Society much emphasis was placed upon the keeping of bees. Last season was wet and cold in spring, and not conducive to a good fruit crop; and those who have set and cared for large orchards of their own have observed that the orchards or parts of orchards near stands of bees bore well while those at a distance did not. The apple blossom is so constructed as to render the work of bees necessary to pollination.

This is the reason why trees bear so much better and more evenly in warm dry seasons.

One speaker said that he had about 30 hives in and about his orchard, and it bore heavily last year, which was not a good fruit year in Vermont.

—*Successful Farming*.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

REV. L. P. HOLMES writes that he also had a live drone from a queen-cell. It was in 1908, the cell was extra large and fine, he caged it, and after the usual 24 days a drone of ordinary size emerged. Last year he had a queen-cell caged, and several days after it should have hatched he opened the cell, finding a fully developed queen, dead, with its head toward the bottom of the cell.

THE BUMBLE-BEE seems in danger of being thrown out of its job as a pollinator of red clover. The *Country Gentleman* reports an invention said to do the work better than the bumble-bee. It consists of a huge brush with about 200 vulcanized-rubber tips to the square inch, which is driven over the clover-field, carrying the pollen from one blossom and depositing it upon another.

TO GET HONEY out of cappings, put them to drain in a container with holes in the bottom; when they will no longer drain, put them in a damp cellar, where they will attract moisture, and the thin honey will drain out to be used for vinegar or bee-feed. Or, instead of taking them into the cellar, put them outdoors in a long box with one end raised, and turn the box end for end as often as the bees dig the cappings down level.

LARVÆ. Nearly had a fit the other day on learning that this word should be pronounced *lar-vee* when all my life I've been saying *lar-vay*. I refrain from adding that it may be also called *lar-way*, lest it throw most of the readers of GLEANINGS into fits. [The pronunciation here will depend on whether one uses the Roman (or continental) pronunciation for Latin words, or English. When we were taking Latin at school we had the English pronunciation, and the final syllable of *larvæ* would have the long sound of *e*. Later on in college, we had the Roman pronunciation; then the same final syllable would have the long sound of *a*. Either way is right.—Ed.]

SAMUEL SIMMINS thinks beekeeping in this country has retrograded on account of the use of so shallow a frame as the Langstroth. He says, *Canadian Bee Journal*, 10, "Editor E. R. Root states that the average yields, taking the United States all over, would probably be 35 lbs. of comb honey, or 75 lbs. of extracted. Has bee culture so degenerated that even to-day the results from the old let-'em-alone style of beekeeping can not be exceeded?" But where is the degeneration shown, friend Simmins? You don't for a minute think that the old let-'em-alone style yielded 35 lbs. of comb per colony, do you? Although there are still enough let-'em-alones mixed with the up-to-dates to bring the average down to 35, that average is probably better than it ever was before. [If our friend Samuel Simmins

were more familiar with conditions as they are in the United States he would not make such statements. For instance, he says our Langstroth frame is responsible for two-thirds of our winter losses. When expert beekeepers all over the United States and Canada using Langstroth frames do not lose during winter to exceed five per cent of their bees, and usually not over two per cent, the Langstroth frame, we may conclude, is doing pretty well. It could hardly do better. Some of the former advocates of deep frames for winter are now using Langstroth frames. See reply to F. P. Clare, p. 179.—Ed.]

D. M. MACDONALD, *British B. J.*, p. 514, concludes that I give hybrids a bad reputation because I practically say that nine-tenths of the weaklings are hybrids. My good friend, however bad hybrids may be, that statement doesn't charge them with badness. Nine-tenths of the weaklings are hybrids, and so are nine-tenths of the *stranglings*, because nine-tenths of all the bees are hybrids. See? Allee samee, the average hybrid is inferior to the Italian—in my opinion. You ask why, for 50 years, I clung to such bad bees. I didn't—not to *average* hybrids. I bred up a strain of hybrids that were better than Italians. More fool I. If I had stuck to pure Italians I might have had still better bees.

G. M. DOOLITTLE thinks no need to have bees closer than two or three miles from pasture. Out west, if I remember, the authorities advise that in orchard regions bees should be not more than a mile apart, so they need travel only half a mile or so. Likely both are right. In hot weather bees can go two miles just as well as half a mile to gather honey; while in the cool and catchy weather during fruit bloom half a mile may be enough. Yes, I once thought two miles apart was well enough for orchards. But I'm older now. [This is a question of locality. Where bees can fly from a hill over a wide valley, so as not to encounter woods, they go much further than over perfectly level country. We have traveled over a very large portion of the United States where bees are kept, and wherever we have gone we have asked the question, "How far do bees fly?" For level country the general response is, "Not more than a mile and a half; usually not over a mile." While their bees will, of course, fly further, the claim is made that they do not work to advantage. In hilly country, such as we find in New York, bees will sometimes fly five miles to gather buckwheat honey. This has been demonstrated very conclusively at the Alexander apiary, at Delanson, N. Y., and in other places in that State where we have traveled; but we think that in most places in New York bees will not go much over a mile and a half to advantage.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

It is interesting to read Doolittle's views of the long and short haul of honey by the bees. It is certainly comforting to think that our bees can reach flowers five miles away; but I have a suspicion that not a little depends on the bees. Now and then we find a colony gathering when others are not showing they can go further or search closer.



I was interested in Mr. Mollett's description of wintering bees in the South. Fifty to seventy-five pounds per hive! Why, it almost takes away one's breath to think of a colony consuming that much. But then I congratulate myself that, if our bees of the North are not at work during our long winters, they are not consuming honey beyond all reason.



We are under obligations to the editor of GLEANINGS for the careful experiments which were made for the purpose of determining the amount of wax used by bees in drawing out a sheet of foundation into a full comb, page 711, Dec. 1, 1911. According to these figures, furnishing an eight-frame hive with full sheets of foundation would save the bees the necessity of making one pound of wax that would doubtless take twelve pounds of honey to produce. This, at ten cents, would be worth \$1.20, or twice what the foundation costs; and yet some beekeepers think they can not afford it.



As to the question whether buckwheat yields honey only during the night or at certain times of the day, or all the time, I believe that it does about as it has a mind to, acting quite differently sometimes from other times. Where I lived in 1867 there was an unusual amount of buckwheat sown that spring, and not a large number of bees kept; and I noticed that, at the beginning of the season, the buckwheat yielded nearly all of its honey in the forenoon; but later in the season the flow of nectar was later in the day, until at its close the flow was almost entirely confined to the afternoon. Now, I doubt not that there are some places where it yields all day, and I am quite sure there are some places and seasons where it doesn't yield enough to be worth mentioning.



Dr. Miller refers to me, page 36, as saying that moths do lay eggs in sections after taking them from hives. Let me say here, to prevent misunderstanding, that our experience has been that moths do not lay eggs in our sections after they are taken from the hives, because the sections are stored where the moths can not get to them; but I always find more or less *larvæ* of the wax moth developing on combs of section honey after they are taken from the hive. If the combs are white and clean, little harm is done; but if any cells of pollen are found,

or the combs badly soiled or "travel-stained," these "varmints" will develop and do lots of harm unless treated to the fumes of sulphur.

The same seems to be true of extracting-combs until they have been frozen so as to kill all eggs or larvæ of the waxmoth. Where do the eggs of the wax moth come from if no eggs are laid by the moths after the combs are taken from the hives? Moses Quinby gave it as his opinion, after very careful experiments, that the moths lay the eggs at the entrances of the hives, and the bees carry them in on their legs or bodies, and scatter them over the combs. Those hatching inside the hives are, as a rule, in every strong colony, quickly taken care of by the bees; but when the combs are removed they develop. If I remember rightly, Mr. Quinby took off boxes of honey, and watched to see that no moth entered; and when every bee had gone out of the box it was sealed so no moth could enter; but if kept in a warm place the larvæ of the wax moth would develop just the same as when exposed to moths.



The recent articles by John N. Lovell, on flowers, are of more than usual value. Somewhere I have seen the statement that Christ, whose life and teachings have attracted so much of the world's thought during the past eighteen centuries, was the first to call the attention of mankind to the beauty of flowers. I can not vouch for the truthfulness of the statement; but one thing is certain—he was a great lover of flowers. Indeed, I think we may say that he was a child of nature, with the hills and valleys, the fields and flowers his teachers. "Consider the lilies, how they grow," is as much a command of Jesus as any other, and if it is our duty to consider the lilies, we may infer that it is also our duty to consider the sweet peas and morning-glories, the apple blossoms and wild asters, and a thousand other objects of beauty on every side of us, too numerous to mention. I have read in an old book of the servant of a prophet who, one morning, was frightened almost out of his wits because he saw a few soldiers encamped on the outskirts of the town, and his master prayed that his eyes might be opened, and they were opened, and he saw more wonderful sights than he had ever dreamed of; and so when our eyes are opened to the beauties and wonders of all about us we shall find more to enjoy and entertain us in our leisure hours than we could ever have believed in our wildest dreams. It is thought a good sign that people are going back from the city to the land, and I am sure it is a good thing when those with literary ability write of nature and all its wonders rather than myths and impossible creatures. There is enough of the real and true to satisfy any sound mind.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

BEE CULTURE AND AGRICULTURE; SHOWING THE MUTUAL INTERESTS OF BEEKEEPER, FRUITGROWER, AND FARMER

Outside of the beekeeping world it is not generally known nor even understood that honeybees were created, not so much for the purpose of furnishing the delicious honey for mankind, as for carrying pollen grains from one flower to another, so that these may bear fruit and seeds. The pollen is gathered by the bees from the flowers, and carried to the hives in little bright-colored pellets on their hind legs, which many persons suppose is the wax from which the combs are built. The bees, however, must gather this yellow dust or pollen from the flowers, to prepare the partly digested food for their young larvæ. This is absolutely necessary; and if they are unable to secure a sufficient amount of pollen the progress of the colony is delayed considerably. In gathering either pollen or honey the bees come in contact with the pollen grains of the blossoms, which adhere to their hairy bodies, and are thus carried from one flower to another. These pollen grains thus come in touch with the stigma, or the female part, so to speak, of the next blossoms visited. Cross-pollination is thereby assured, and the thorough setting of fruits and seeds the result.

Bees are most important distributors of pollen, because they appear in larger numbers than other insects, and especially in the early part of the season. It is this reason, as well as their greater activity, that makes them more useful in this great work they help to perform, the value of which, as estimated by good authorities, is far greater to our country than the value of the honey crops. It is certain that the bees, on account of their greater numbers, visit a far greater number of blossoms, and do this work more thoroughly than other insects.



THE SEX IN PLANT LIFE

Sex in plants or flowers exists very much as in animals, and it is just as necessary that fertilization take place before fruit or seeds develop. In many plants the male and female exist in the same flower. In others the male is found in one and the female in another flower of the same plant, while in still others each sex is found in the flowers on separate plants entirely. No matter what the arrangement, however, it is necessary that the pollen grains from the anthers of the male part of one blossom reach the stigma of the female part of another. The pollen grains of one blossom ripen earlier or later than the stigmas, so that self-fertilization is prevented, and the bees carrying the pollen to the other blossoms in the right stage to receive it effect and complete the fertilization, after which the de-

velopment of fruit and seed follows. Without this pollination the blossoms would wither and die instead of bearing fruit.



SOME STRIKING EXAMPLES

During the most favorable weather conditions the pollen grains may be blown about by the wind, and pollination of the blossoms take place so that fruit may be borne. But even under such conditions the bees play a great part in making the work more thorough, as they visit many flowers and blossoms that may not be reached by pollen driven by the wind. It is well known that such ideal weather conditions do not always exist; and during such conditions, when the weather is damp and the pollen sticky, the wind does not blow it about so easily, and it is then that the insects, and especially the bees in their large numbers, play the most important part in the crop of fruit and seeds that will be harvested. Where certain varieties of plants or fruit trees are isolated from others of their kind, and when there is a great distance between them, the chances of pollination are not certain, and the bees must be depended upon to carry the pollen from one to another. Where bees are not present, and the wind only depended upon, there are instances on record of trees that bore no fruit on the windward side, but an abundance on the other side. The presence of bees would have insured the pollination of the blossoms on the windward side, and a better setting of fruit on all parts of the tree.



DO BEES PUNCTURE FRUIT?

It has often been stated that our bees puncture fruit; but numerous experiments show that this conclusion is ungrounded, their mouth parts being so constructed that they can not break the skin of any kind of fruit. They appear only after birds or insects have caused the skin to break, and then only to gather the sweet juices from the bruised fruit. Many experiments in which sound fruits were hung in hives of bees have proved absolutely that the bees can not puncture the skin of sound fruit, even if they are starving for want of food.



POISON-SPRAYS AND BEES

As the insect depredations are becoming more and more harmful to various crops, man must protect himself against these insect pests or bear considerable loss. For this reason spraying is being practiced more generally. The thinking person will not kill his best friends, the bees, by spraying during bloom, for the greatest authorities have shown that it is not only unnecessary but dangerous. In many States there are stringent laws against spraying during fruit bloom.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

The problem confronting us in Southern California is not how to keep more bees, but how to keep what we have until a season of more bountiful rainfall.

The report of the Northern California Beekeepers' Association, by W. A. H. Gilstrap, has the true ring and the "get together" spirit, which I hope will do much toward the building of a great harmonious State association that will enable us to do something besides "resolve."

In behalf of our retiring President, Mr. B. G. Burdick, I am going to extend a vote of thanks for the State association, this matter having been overlooked in the rush at the close of the session. Mr. Burdick wielded the gavel, so far as I know, to the satisfaction of all.

The gentleman who accompanied the State demonstration train (I did not learn his name) said before the State association that European foul brood (black brood) could be cured with any kind of bees provided the colonies were strong enough. In this I believe he is badly mistaken. No doubt strength is a great factor, but in itself it is not sufficient.

Northern and Central California will probably produce much more honey this year than the southern part of the State. Indeed, it is quite possible that, before many years, there will be a thinning of ranks in our Southland for more desirable locations over the ridge. The seasons here are much like the little girl who had a little curl in the middle of her forehead—"when they are good they are very, very good; and when they are bad they are *horrid*."

February has passed without a drop of rain; the usual pollen-bearing spring flowers did not germinate nor dry up when small, for the earth is as dry now as it was last midsummer. Spring breeding in many places is almost at a standstill, and the outlook even for orange honey is the most gloomy of any time for nearly ten years. Optimists say we shall have rain yet; but we have had this false hope so long that my mind is very much akin to that of the man from Missouri, who had to be shown.

HOW EDUCATION AFFECTS THE DEMAND FOR HONEY.

The people of Texas have been fed on bulk comb honey until they now demand it. Colorado seems to have fed on section honey, while out here we have taught them to eat extracted, and the quantity consumed is wonderful. One grocery in this city sells an amount running into tons each year. Beekeepers sell many five-gallon cans to

families, nearly all of whom return their cans to be refilled the following season. One enterprising young man put some bulk comb on the local market two years ago, giving his entire supply to one grocer to dispose of, and a demand was created that was hard to fill. The young man has since left the city; but the demand for his ware remains at that store. A majority of people call extracted honey "strained honey," and believe it is squeezed out through a cloth. If this one false idea could be overcome it would add much to the demand for this product. People follow their education pretty closely, whether it be social, religious, or on other lines. Many, no doubt, remember the time when grandma or grandpa "robbed" the old "gum," carried in a quantity of honey, "bee bread" (and likely some brood), and really strained it. Is it any wonder the idea is hard to overcome?

DRASTIC COUNTY ORDINANCES.

Ventura County has passed an ordinance that "all bees not bearing an inspector's certificate will be destroyed on arrival," while Imperial County Board says no more bees shall be brought into that county. It is rather laughable to read how some of our county boards are going to block the avenues of trade or kill it when it arrives. Personally, I think these county boards are well-meaning gentlemen, but poorly advised. Not a great while ago some one persuaded the city trustees (of Redlands) to pass an ordinance prohibiting any person from keeping more than five colonies of bees in the city limits. The ordinance was attacked in the superior court, and defeated. There is little doubt, in my mind, that such county ordinances as mentioned above would meet the same fate if taken into courts, for these reasons: One county can not legislate against another. Such regulation comes under State jurisdiction, while no court would allow the destruction of healthy bees any sooner than it would domestic animals. If every county in the State should pass an ordinance identical with that of Imperial County, there would soon be a condition that would be intolerable. Migratory beekeeping is a part of our modern-day progress—has come to stay, and can not be stopped by a few county boards. Such drastic ordinances, in my opinion, will hasten the day when we shall have a State law that will be effective without trying to prevent free movement, or the destruction of healthy bees, for the very good reason that these same counties want protection, and will back a good State law solidly when they meet defeat in what they have. I am not opposing quarantine laws by any means; they are becoming indispensable; but I am opposing those things that are neither good law nor common sense.

Conversations with Doolittle

At Borodino, New York

OVERSTOCKING A LOCALITY.

"I have fifty colonies of bees and desire to increase to as many as my locality will support. Then, if I see my way clear, I may start some out-apiaries. Now, what I want to know is, about how many colonies I can profitably keep in one place. I have asked several beekeepers about this, and I find a great diversity of opinion. Some tell me that fifty is enough, as it takes more than two-thirds of the nectar in most fields to sustain the colonies during the year. Others say that Mr. Alexander kept 700 colonies in one apiary and got splendid returns from them. What is your opinion?"

"Overstocking a locality is a subject which has puzzled many a beekeeper; and deciding upon the number of colonies of bees that may be kept profitably in one locality is difficult, even for one who has given much thought to this subject. If I am right, Dr. Miller has said somewhere that there is a limit beyond which one can not profitably increase the number of colonies in an apiary; but just where that limit is, can, perhaps, never be learned. He said that, if he were obliged to make a guess, he would think about eighty colonies in one apiary would be the limit of his location. You will note that he was talking about *his* locality, which may be better than the one you are in, or it may not be as good. Therefore a knowledge of the locality one is in is one of the important factors which must be taken into consideration.

Then, again, the seasons are so unlike in different localities that it will never be possible to do much more than to estimate approximately the number of colonies that may be profitably kept in a certain location. It will also become apparent to all that a different approximation must be made for each locality.

"Mr. Alexander was in a most propitious locality—one in which there were thousands of acres of buckwheat sown every year. This, in addition to clover and basswood, gave something which every beekeeper would thoroughly enjoy. But Mr. Alexander did not decide that 700 colonies was about the right number for him to keep, without years of experience in and with his field. Therefore *experience* comes in as a very important factor, and that experience must cover several years in any given locality before any thing like a correct estimate of how many colonies can be profitably kept can be made.

"Still another factor which must be taken into consideration is the stability of the field. When I first began keeping bees, there were great forests in sight of the apiary in every direction, and many of the trees were basswood, some of them four to five feet across at the stump, and eighty feet tall, with great spreading branches. Basswood lumber of the best quality could be

purchased then for \$8.00 a thousand feet, and at that price there was little incentive to cut these trees, save those dying of old age. But in the years since then, the price of such lumber has gone to \$12, \$20, \$25, \$30, and now to \$35. The result has been the denuding of these forests until very few basswoods remain except in gullies and other out-of-the-way places where it is almost impossible to get logs. In former years there was no failure in nectar from this source, so that, in three seasons out of four, during the blossoming of our basswood, 400 colonies set down here could not begin to collect the nectar. But now this is all changed, and a good crop of basswood honey from one-fourth that number is the exception rather than the rule. In fact, if mustard, white and alsike clover, and buckwheat had not materially increased in this locality during the past fifteen years, beekeeping would be no longer profitable, where for twenty years in succession my average yield of section honey was 85 pounds per colony. With the prices at from 22 to 28 cents a pound for section honey, apiculture was very profitable in those days when basswood forests surrounded many of the apiaries in this State.

"In deciding this question of overstocking the home apiary to an extent sufficient for dividing the number and taking part of the colonies to a different locality, allow me to suggest that it costs more to manage bees away from home than it does in a beeyard near your back door. The average yield of the home apiary might be cut down considerably from the increase of numbers before it would be profitable to start an out-apiary in some locality from five to ten miles distant. An out-apiary requires the purchase of a team, automobile, or some means of conveyance for use in going to and fro, as well as a change of methods, non-swarming and other systems, all of which bring added expense. But after once starting in the out-apiary business, the establishing of one or more additional apiaries is not such an expensive affair as was that of the first one, for all of the things necessary for the first can be used in any of the apiaries subsequently started."

How Bumblebees Puncture the Nectaries of Bean-blossoms

When my broad beans began to bloom I noticed that the bumblebees were always around; yet in the majority of cases the blossoms failed to set. I then noticed a hole at the base of the flower like that made with a pin, and this hole was not found in the newly opened buds. One day while wondering about this I saw one of the bumblebees, of which there are several kinds, go to a flower and deliberately eat a hole and then extract the honey as if it had been at the job for years. So it missed the pollen.

Westley, B. C., Oct. 4.

H. G. SLATER.

General Correspondence

BEES IN RELATION TO HORTICULTURE

BY H. HARLEY SELWYN

That the honeybee (*Aphis mellifica*) forms an important link in successful agriculture is now very generally recognized. The large annual production of honey and wax due to the industry of these insects is of very considerable economic importance; but in addition they probably play almost as important a part in materially increasing the yield and quality of the various fruits in the orchards and gardens scattered throughout the land.

That bees are intended by nature to aid in the pollination of flowers, there is no doubt, as the pollen and nectar secreted by the flowers are both absolutely essential to the life of bees, and consequently they are eagerly sought for by them. It is true that other insects, as well as atmospheric conditions, aid in this work of pollination to a considerable extent; but these other insects are comparatively few in number during the earlier part of the season, and, besides, they appear to visit the flowers only for the nectar which they contain, whereas the bees are in search of both pollen and nectar; and at the time when the orchards are in bloom the requirements of the hive, on account of the many thousands of young larvæ therein, require large quantities of pollen. For this reason, if climatic conditions should be unfavorable for the secretion of nectar, the bees would, nevertheless, visit the blossoms in order to gather the pollen which is so necessary, and in so doing accomplish the end in view, namely, that of transferring particles of pollen from one flower to another, or from the stamens to the pistils of individual flowers, and thus bring about their proper fertilization.

IF THE BEES ARE KEPT AWAY NO FRUIT WILL SET

Numerous experiments have proved conclusively that comparatively little fruit will set if fertilization depends solely upon the carrying of the pollen by the wind and other minor agencies. In proof of this it has been recorded that two trees of the same kind, both heavily laden with bloom, were selected, the one being protected with cheesecloth and the other left uncovered, with the result that the former set practically no fruit, while the one left accessible to the bees, of which there were large numbers in the vicinity, owing to the proximity of an apiary, bore an abundant crop. This is but one of the many striking examples which might be cited to show the importance of bees in relation to horticulture.

There are, it is true, seasons when fruit trees of all kinds are so heavily laden with bloom, and the weather conditions are so ideal for pollination, that, even with the ordinary agencies, sufficient fruit is set to in-

sure good crops. Unfortunately there is also the reverse side of the question when the period of fruit bloom is accompanied by dull, cloudy, and possibly wet weather, with but scant periods of sunshine. At such a time the farmer or fruitgrower who is fortunate enough to have a large apiary in or near his orchard will surely benefit greatly, as, even if there are only a few hours of sunshine each day, tens of thousands of bees will visit the blossoms during that period and effect the necessary fertilization which otherwise, owing to unfavorable conditions, might and probably would not have taken place. It would be very difficult to say just how many colonies are required to the average acre, whether it be trees or flowers that the bees are forced to visit; but it is safe to say that most localities are never overstocked with these very necessary insects. In fact, it is generally the reverse; and as a result there are undoubtedly many tons of honey going to waste annually for the lack of gathering, not to mention the hosts of plants that never succeed in accomplishing that most necessary function, namely, the proper development of the seed ovary, and consequently do not reproduce their species to nearly the extent that nature intended.

SPRAYING DURING FRUIT-BLOOM INJURIOUS

So much has been said and written on the subject of spraying and its important relation or effect on bees that it is hard to deal with the subject in other than a general way in an article of this nature; but perhaps a general resumé of the main points would be of interest.

The question of poisonous solutions used in spraying to combat the many injurious insects and fungi peculiar to fruit trees and bushes of all kinds, and the proper time for their application in one which is worthy of careful attention, especially in view of the fact that spraying is now being advocated as the one and only means of insuring the production of perfect fruit. It might be expected that the individual who owns an orchard, even though it be a small one, and who has become sufficiently familiar with up-to-date methods to practice spraying, would realize the injurious effects such spraying will have on any bees in the neighborhood if this work is done during the period of fruit bloom, and, consequently, would refrain from making the applications at so critical a period; but, unfortunately to relate, there are still far too many occurrences of this nature as the seasons come around, notwithstanding the efforts of the numerous beekeepers' associations to enlighten these misinformed individuals.

BEEKEEPING AT EXPERIMENT STATIONS

That the importance of beekeeping is becoming more and more generally recognized in the United States and Canada is evi-

denced by the fact that specialists are being employed and apiaries established in connection with the various agricultural colleges and experiment stations of both countries. It is to be hoped that, by this means, in addition to the mass of useful information on the subject contained in the leading apicultural journals of the present day, this important branch of agriculture will make rapid strides in the future. Notwithstanding the educational opportunities on the subject and the improved methods now available, there will probably always be a large number of beekeepers who will continue to keep their bees in a haphazard way—that is, in the old box hive or any other receptacle handy. It is, however, an ill wind that blows nobody good, as the saying goes, for the rapid spread of American and especially European foul brood may perhaps, in the end, prove to be a blessing in disguise, inasmuch as it is almost sure to put out of business thousands of these so-called “beekeepers” who in reality do more harm than good in the neighborhood, as their bees are too few in number to be of very material assistance, but at the same time capable of transmitting the honey containing the germs of these malignant diseases.

Ottawa, Ont., Can.

BEEES CAN NOT INJURE SOUND FRUIT

How to Prevent Grapes from Being Punctured by other Insects and Birds

BY PROF. H. A. SURFACE

[A copy of the following letter by Prof. Surface, in answer to a correspondent, was sent to GLEANINGS. We regard it as a most convincing statement; and coming from such a recognized authority we are glad to place it before our readers, withholding the name of the original inquirer.—ED.]

Replying to your letter asking if there is any practical means of preventing bees from destroying grapes, I beg to say that the bees themselves do not attack the grapes excepting when the grapes themselves are overripe or have been punctured by other kinds of insects, such as wasps and yellow-jackets, or by birds, when they have been diseased by disease germs, which would eat their way through the skin of the grape. It is impossible for bees to make holes in grapes that have not been previously damaged in some way. I have tried this again and again. After the holes are once made the bees suck the grapes dry. This really is a benefit to the grapegrower, because it prevents his packing in his shipping packages a lot of grapes that were damaged, and, therefore, would be sure to sour and start decay in the cluster, and spoil the package.

However, what you need is information as to the method of preventing the grapes from being injured by the original depredators. The most effective means of doing this on a limited scale is by bagging in paper bags. You can buy two-pound paper bags by the thousand or ten thousand at a low price. A woman can place hundreds of

them around the clusters in a day. Fasten them with a pin at the base of the entire cluster of grapes. This should be done just after the blossoms fall, or before the grape berry becomes the full size of a buckshot. This will not only prevent damage as they become ripe, but will prevent injury by the curculio, the grapeberry moth, disease germs, etc., and will give you fruit that will justify it.

If you were an experienced grapegrower you would not need to be asking for information as to how to prevent injury from them, because, in the great grape belts, this is handled by spraying; and there, where the production is by many tons per year, the proper thing to do is to spray the fruit and vines several times during the season with the Bordeaux mixture and arsenate of lead. Use the regular formula of Bordeaux mixture, of three pounds of bluestone and four pounds of lime in fifty gallons of water, and add to this two or three pounds of arsenate of lead. Make the first spraying just after the buds burst in the spring, the next spraying after the blossoms drop, and about the time the bags would be put on if you were going to bag instead of spray. The next spraying should be about three weeks after this, and again should be repeated in three or four weeks for two or three intervals.

If you are not a commercial grape-grower, the bagging will be found cheaper and more satisfactory than the spraying, because a man who does not understand thoroughly extensive spraying, will not, as a rule, do it properly. If you are an extensive grape-grower, but do not live in a region of large commercial growing of this fruit, I would by all means advise you to go during the proper season right into the grape belt as near to Northeast, in Erie County, as possible, and see for yourself just the methods of cultivation and spraying that are there practiced most successfully. The kinds of apparatus that are used, the methods of trimming and cultivating the vines, methods of making and applying the spray liquid, all are better learned on the ground where this is being done extensively than by any other means. In that region we never hear any thing of damage to grapes by bees, because they gather their grapes and market them at the proper time, which is before they are bursting with dead-ripeness. They also spray, and cause the skin of the fruit to be healthy, and thus there are no holes by disease germs where the bees find entrance.

You mention larger, stronger, and later foliage having been made on the vines during the past two years by the use of nitrate of soda. This is, no doubt, due to the nitrate, as I have seen such results on almost all plants where it is used. From 150 to 200 pounds per acre is the amount generally used on trees, vines, and, in fact, almost all forms of vegetation. It should be applied when growth starts in the spring, and again in about a month, but not continued after the early summer.

PROF. A. J. COOK, HORTICULTURAL COMMISSIONER OF CALIFORNIA

Something of the Life History and Doings of the Man who has been Asked by the Governor of California to Step up Higher

BY E. R. ROOT

For three or four issues back I have been telling something about the lives of eminent beekeepers who have ended their labors in this world, and who have gone to the great beyond. In this issue I have a more pleasing task—that of saying something about the life-work of a man who is still in the flesh, and who, it is to be hoped, will be with us many years to come. I refer to none other than Prof. Albert J. Cook, who has just been appointed Horticultural Commissioner of California. He needs no introduction to our older readers, for his contributions have graced these columns for many years.

For twenty-seven years Professor Cook was instructor and Professor of Entomology and Zoology in the Michigan Agricultural College. During the latter part of 1893 he was called to take a similar position at Pomona College, Claremont, Cal., where he has labored for 17 years more. By the way, long service anywhere always speaks well for any man.

During the latter part of last fall the California papers announced that Professor Cook, of Pomona College, was about to be promoted again—to receive the appointment of State Commissioner of Horticulture under Governor Johnson. Later on this appointment was duly confirmed. The Governor, in explanation, says he appointed Cook "solely upon his merits," and that "his position is one of the most important offices in the State." And as one of his co-laborers has well said, "this is the crowning event in Professor Cook's remarkable career."

No other man in the State nor in the country at large could bring to this particular work more clean-cut and indubitable fitness than Professor Cook."

Professor Cook will have placed at his disposal \$100,000 to carry on the work in his department, and the responsibility of appointing capable men to assist him is considerable, as the Governor says. When we consider the fact that California probably produces more fruit than any other State in the Union, and is destined to go still further, and that the keeping of bees is one of the big industries of the State, this appointment looms up large. Indeed, we doubt if there is another commissioner of horticulture in all the United States who has a larger field of work than our own Professor Cook. I say "our own," because he has been so closely identified with the beekeeping interests of the country. Himself the author of one of the most widely sold bee books, "The Beekeeper's Guide," a prolific writer for the bee journals, a number of times president of the North American and National

Beekeepers' Association—well, we have a right to claim him, as much as have the horticulturists of the country.

I think it is fair to say that Prof. Cook is distinguished, not so much for the great things he may have discovered in science (and he has done his share), but rather because he has been a great teacher. Hundreds of his students, some of whom have made their mark in the world, bear testimony to what he has done for them. He is loved and admired by his fellow-professors, and adored by his students, both at the Michigan Agricultural College and Pomona



Professor A. J. Cook as he appeared when he was conducting his experiments in bee culture at the Michigan Agricultural College.

College. The Pomona College paper, just received, is full of expressions of love and regret that he is to leave. I make just one extract:

The loss to Pomona College will be felt most keenly by all of the students who have known Professor Cook personally. His genial nature, his great heart, his tremendous and infectious enthusiasm, his keen interest in the personal welfare of every student under him—these things have made him greatly beloved by all. His interest in his students has never, through all the years, been a perfunctory one, but always a living, active interest, that went right out and fought for them; an interest that not only helped them to find their life work and get into it, whatever it might be, but ever afterward supported and encouraged them to great efforts. In a quiet way, unknown to the public, he has even financially assisted deserving students to complete their work, and for this he has been repaid in some things beyond the value of money—loyalty and love.

An indefatigable worker himself, he has the rare faculty of inspiring his students, and all those with whom he comes in contact, with his own habits of industry, zeal,



PROF. ALBERT J. COOK AS HORTICULTURAL COMMISSIONER OF CALIFORNIA.

and enthusiasm. His style of writing is natural and easy as well as fluent. As a lecturer he has few equals.

But Professor Cook is an original investigator. He has done much, both at the Michigan Agricultural College and Pomona College, to advance the cause of bee culture,

fruit culture, and horticulture in general. As a professor of Entomology in the Michigan Agricultural College he conducted a long series of experiments showing the very important and intimate relation between the bees and fruit. He had a number of the fruit-trees at the Agricultural College, just

as they were coming into bloom, covered with mosquito-netting. Some particular limbs were covered, while others were left to the visitation of bees and other insects. All of these experiments, showing conclusively the valuable work of the bees in pollinating fruit-blossoms when no other insects could or would be present, were published in the bee journals at the time, and, later on, were incorporated in more permanent form in the A B C and X Y Z of Bee Culture under the head of "Fruit-blossoms," and also under the head of "Pollen." While other investigators had done something similar to this, Professor Cook conducted his experiments on such an elaborate scale that he practically settled the matter for all time to come.

Again, we find him among the first to proclaim that honey is not evaporated nectar, as many had supposed. An elaborate series of experiments were conducted at the Agricultural College under his directions, the result of all which showed that nectar, after it has been gathered by the bees, is transformed or "digested" into a new chemical product known as honey. He also claimed that sugar syrup, if fed *thin* enough, would be transformed also by the bees; and from this arose a sharp controversy at the time, whether it was legitimate to feed bees sugar syrup and have them store it in sections and sell it as "honey." While Professor Cook never contended that it was proper to sell it as honey without stating that it was sugar fed, he maintained that it had the properties of honey, and, if fed *thin* as nectar, so that the bees could properly invert it, that it was "honey." This stirred up a "bees' nest" among the fraternity at large, and the stings that were jabbed into Professor Cook at the time were something fierce. While scientific men, including Dr. Wiley, admitted that there was a decided chemical change from nectar into honey, and that *thin* sugar syrup fed slowly to bees took on the properties of honey, they contended that the product *was not honey*, because the nectar of flowers has certain properties, including volatile oils, that are not found in sugar. The whole fraternity seemed to feel that the dogma of sugar honey was too dangerous to let go unchallenged, and the matter was dropped; but no one could or should question the honesty or sincerity of Professor Cook or those who stood with him on the proposition.

Professor Cook also took the ground that, as honey was a predigested food, it could be eaten by children and certain invalids, when cane sugars would do harm. In this, Professor Cook seems to have had considerable support, although there are some food experts who take no stock in this teaching. It is nevertheless true that not a few medical men are beginning to recommend honey in their dietaries; and recent issues of GLEANINGS have reported how honey is being given to convalescents at hospitals.

Whether Professor Cook is or has been always right on these propositions, I can not say; but I have always noticed that, when

some pioneers of science attempt to enunciate a new theory or truth, he often meets a storm of opposition. Galileo was pronounced a heretic, and put in prison for saying what we all acknowledge as an unquestioned fact. There have been many Galileos since, and there will be more to follow.

Later on, Professor Cook took an active interest in spraying fruit-trees to destroy injurious insects and fungi. Indeed, in the language of another, "the remedies he first recommended are now common; and he was probably the first to demonstrate the efficacy and safety of Paris green for the codling moth."

Again, we find that Professor Cook was one of the first to point out the danger to the bees and to the beekeeper from spraying trees while in bloom. He showed that spraying at such times is destructive to bees, and wholly unnecessary if not harmful from the standpoint of the fruitgrower. Later on we find him in the forefront advocating measures for the suppression of bee diseases, and Michigan was one of the first States in the Union to have a foul brood law. During all this time he was teaching entomology and zoölogy, and going around lecturing at farmers' institutes, telling the farmers how to grow more and better crops. After going to California he continued his active interest in bees, devoting himself assiduously to the work of his department.

During the last four or five years his writings have not appeared in the columns of our bee journals; for be it remembered he was approaching a time in life when he could not work night and day as he had done in his early career. But I find that, according to the college paper published at Pomona, he did much "to place his department in the college on the most efficient-working basis; and his services to the general public are warmly acknowledged by grateful men and women throughout the length and breadth of the State. His experiments in agricultural and horticultural matters have for many years been of a very extensive character. Taking all of these things into consideration, Governor Johnson could scarcely have found a man better equipped to undertake the duties of the new office, involving, as it does, an annual appropriation of \$100,000 and a corps of assistants."

Besides all his other qualities, Professor Cook is one of the most lovable Christian men I ever met. I have seen him in conventions, and time and time again he has, with that broad and loving spirit so characteristic of him, poured oil on troubled waters. He was, indeed, a great peace-maker, because he seemed to have the happy faculty of seeing the good in everybody, and of trying to make every one happy. It goes without saying, that Professor Cook will harmonize the apparently conflicting interests of the beekeepers and the fruitgrowers. If he has any thing to say about it (and he will have a good deal) there will be "no strife between me and thee, for we be brethren."



Fig. 1.—Tobacco farm of Fred M. Colton, Granby, Conn.

THE TOBACCO INDUSTRY IN THE CONNECTICUT VALLEY

BY E. H. SHATTUCK

The subject of tobacco honey may sound a little odd, and the average beekeeper in Connecticut who has not investigated the matter thoroughly is a trifle alarmed on finding out that the tobacco plant is being allowed to blossom, and, as a consequence, yield nectar; and many of them feel that it will spoil the flavor of the late summer and fall honey to a certain extent.

It is because of this feeling of unrest among the beekeepers of the Connecticut Valley that this article is penned, in the hope that it will reach, through *GLEANINGS*, a great number of the fraternity who live in the tobacco section.

During the past few years "syndicates" and well-to-do farmers have begun raising under cloth what is called "shade-grown" tobacco, and also have commenced "picking" the leaves from the outdoor tobacco, so called, in both instances allowing the plant to blossom and mature seed. Until these new methods were adopted all tobacco in the Connecticut Valley was topped, and the "suckers" picked off as they presented themselves, all blossoms thereby being headed off except, perhaps, a few plants in the field which were left to produce seed.

The tobacco plant is self-fertilizing, a large part of the pollen being used by each individual flower. When the grower wishes to have "pure" seed true to name he ties a large paper bag over the young blossoms; and as the stem lengthens out he passes along and pushes the bag upward to give

the flowers room to expand. In this way all insects are kept out, and the result is seed that is an exact counterpart of the parent plant—that is, the offspring is such. One might think that, so long as no insect is needed to fertilize the blossom, the chances of a secretion of nectar would be slim, as nature supplies it abundantly only to those plants that need the help of the bee to carry the pollen from one flower to another; but, as a matter of fact, a great deal of nectar is supplied in right seasons, and it is a help to have the bee visit the flowers to help disseminate the pollen grains; and it doubtless makes stronger and more fertile seed, as that is one of nature's strongest laws. I think the growers will find to their sorrow that the practice of raising seed under the paper bags, if long continued, will tend toward weaker and therefore less hardy and sturdy plants. Does it not sound reasonable? The tobacco expert, who raises "Shade Grown" for the leaf only, does not leave openings for the bees, as it does not matter materially to him. But in spite of all he can do, the fields are so large that numerous openings present themselves to the industrious little insects, so that more or less of the nectar is saved.

Remember the seed from these immense fields of tobacco is not saved. A small piece is arranged for, to cover the needs in this line.

The year 1912 will see hundreds of additional acres devoted to the raising of tobacco by these new methods, in Hartford County alone, as it has proved a very profitable crop, the leaf thus produced selling readily at advancing prices. This gives the beekeeper a new and increasing source of hon-

ey, and at a time of year when a dearth is usually on in this locality. The plant furnishes nectar between the buckwheat flow and the fall flowers, such as goldenrod, asters, etc., and is a heavy yielder in some seasons; but a cool dry summer, such as we have just experienced, stops the flow to a great extent. In 1911 there was very little honey of any kind produced in this locality. In 1910 the bees from my apiary swarmed on the tobacco, some colonies producing 100 pounds of surplus in sections. It will be several years before the value of tobacco honey is fully known; and whether this new source of nectar will eventually help or retard the Connecticut beekeeper, will be a question that will be decided in the near future.

I wish to emphasize especially the statement that our beekeepers have nothing to fear from the nectar of the tobacco plant. All the early section honey is ready to come off the hive before the tobacco commences to yield, and it has been quite the rule in Connecticut to let the fall flow go to the brood nest for winter food, and this new source will fill the bill exactly, helping out largely in seasons when fall flowers fail, or are cut by early frosts. The bees winter finely on the honey; and if any sections are made during this flow they will certainly sell as well as buckwheat, being somewhat lighter in color, and, for many uses, equal to any of the darker grades of honey, if not superior. If for any reason the beekeeper does not wish it to go into sections he can put on extracting supers and handle the product in any way he sees fit.

Connecticut does not boast of many large apiaries, under 20 colonies being the rule in

this locality; but if the tobacco plant continues to be raised and allowed to blossom, many more can be kept to advantage. More colonies have been lost during the winters for lack of supplies than any other one thing, as a good fall flow is the exception rather than the rule. If the new source will fill the brood nest for winter, bees will increase much more rapidly, and give the beekeeper more assurance of success.

Fig. 1 shows outdoor tobacco in full bloom owned by Fred M. Colton, of Granby, Conn. Mr. Colton's tobacco-warehouse for sorting the crop is seen in the distance. About 60 hands are employed in the place during the winter. Fig. 2 presents the tobacco blossoms near at hand. A remarkable thing about the flower is that a bee will disappear in the depths of the flower, and remain perhaps a full minute, and, upon coming out, fly straight home. It can readily be seen that a field of 100 acres or more will keep quite a few bees busy, with such a supply to draw from.

Fig. 3 gives an idea of the tents which are used to produce "shade grown" tobacco. Notice the splendid roadways that lead one through these vast fields, some of them being nearly a mile in length. These roads occur every little way in order that the harvesting may be the more easily carried on. A severe thunderstorm sometimes comes along, ripping the cloth off from hundreds of acres, giving the bees a fine chance to visit the bloom. But the tents are never "bee tight," so that they find a way in if the nectar is to be had.

People who have not visited the large tent plantations that have sprung up as if by magic can not realize the progress the in-



Fig. 2.—Close view of tobacco blossoms. The honey from this source is dark in color, but answers equally for winter stores.



Fig. 2.—Tobacco growing under cloth. Some of these roadways are nearly a mile in length.

dustry is making. I am not a party to the use of tobacco, and would not, if my way were law, promulgate the use of it; but it is here, and the honey part is certainly all right.

Granby, Ct.

HOW FRUIT MAY BE IMPERFECTLY POLLINATED

Spraying Trees in Blossom all Wrong, Even from a Fruitgrower's Standpoint

BY ARTHUR C. MILLER

We beekeepers are very careful not to permit the fruitgrowers to forget the importance of our bees to their business. We are not at all backward about reminding them of the sundry blunders and losses of some of their fellows in driving beekeepers from their vicinity, and then having to beg them to come back. We very diligently rub it in, for it gives us a deal of satisfaction to say "I told you so," and then you know it helps in a whole lot of nice little ways. These orchardists give some of us a nice spot for an apiary, a room or a building for storage, extracting, etc., sometimes do our carting, just so they may be sure of having the blossoms well pollinated.

Then sometimes we forget all about a crop of fruit-bloom honey. "Oh dear! no, we seldom get a crop of honey from apple blooms—perhaps only once in four or five years. Really it would be better for us to put the bees a couple of miles down the road. But as the bees are such a help to you, and you keep a sort of watchful eye over them, we are really very glad to help you out, even if we do get a little less honey."

And after all our pains to oblige and accommodate, some of those chaps every now and then get very skeptical about the usefulness of the bees to him. "Drat the confounded stinging bugs, they are a consarned nuisance. I got all the apples the trees would carry before you brought the pesky things here, and the sooner you take them away the better I'll like it."

Most exceedingly unreasonable, very shortsighted, and so annoying, too, after all the pains to which we have been to educate him to our point of view! Oh! well, he must be talked to again and shown his folly.

Here is a fine bit of evidence, good enough to convince him or any other fruitgrower. This photograph of an apple, cut horizontally in two, shows four seed vesicles with fertilized and perfect seed, while the fifth contains only the dead and dried ovules which were not fertilized. And the result of such non-fertilization is plainly seen in the surrounding pulp. The apple on that side is flattened. If two or three vesicles were in that condition the apple would be much more deformed; in fact, quite unmarketable.

"Now, sir, that is because the blossom was not fully pollinated. You go to work and plant hundreds and thousands of trees all in one great orchard, and the blossoms are numbered by millions. And, at the

same time, old Dame Nature has not massed the insects to do the work of carrying pollen. It is up to you to help her out; and the only way in which you can do it is to put a lot of bees there."

"The bloomers' bees are in the way when I'm spraying."

"Man, you're crazy to spray when the trees are in bloom. That spray, falling on the very sensitive stigma of the flower, partly or wholly ruins it, so that, even if pollen lodges there, it can do no good. A blossom only partly injured and then pollinated would give just such a sort of apple as shown. Furthermore, you are nowadays so confoundedly thorough in your work that



The result of imperfect pollination. Note the shriveled condition of the upper seed and the depression in the apple on that side.

seldom is there a spot on any tree not reached by your spray. Just do that when the trees are in full bloom, and you will be minus a crop of fruit that season. And here is the proof. One orchardist, spraying after the petals had fallen, came to one tree which, for some reason, was away behind the others, and was still in full bloom. To save himself the trouble of another trip, he sprayed it then, and nearly every little apple dropped off. Of the few which matured, there were not a dozen perfect ones."

We must not let the fruitmen lose sight of these facts. It is our duty to help them avoid loss, misfortune, and disappointment.

And, by the way, that fruit-bloom honey sold like hot cakes, and at a fancy price too—could have sold five times as much. Get after it, boys; it's a good thing.

Providence, R. I.

[As Mr. Miller says, the beeman should help educate the fruitgrower if he is ignorant of some of the fundamentals of his own business; for by so doing he helps his own business. Every beekeeper should know of the important work performed by the bees, for he is almost sure to encounter some small fruitgrower who may jump to the conclusion that bees are a nuisance rather than a benefit.—ED.]



W. C. Murdin, Gladstone, Manitoba, Can., and some of the products of his bee-pollinated melon vines.

HOW TO AVOID SPRING DWINDLING

A Scheme for Helping the Weak Colonies in the Spring to Hold their Own

BY WILL JENSEN

In the spring of 1896, after much loss and many sad experiences in losing weak colonies, I was almost ready to give up. I had tried to be successful by following the experiences of others, and I had read every text book that I knew of that had any thing to say about spring dwindling, but still my fine young queens were left with a mere handful of bees in their hives. While I was thinking the matter over, a plan occurred to me one day which I proceeded to try at once.

For every weakling that I had, I got ready an empty comb, a frame containing half a sheet of brood foundation, and a comb of honey. I put the empty comb by the hive wall, the frame with the half sheet of foundation next, and finally the comb of honey. After lacerating that one comb of honey so the bees would be bound to load up, I filled the rest of the hive with empty combs and closed the entrance so that only four bees could come out at once. In ten days I was surprised to see what wonderful progress these weak colonies had made; for on both sides of the foundation there was sealed brood. At this time I lacerated the comb of honey again.

If there is no comb of honey on hand, rip from a 2×4 , just the length of a frame inside, a piece two inches deep by the width of the topbar; bore this piece full of holes, starting the bit on one of the narrow edges but not boring clear through. Let the holes

be close enough together so that they will overlap. Fasten a half sheet of foundation to the bottom of this trough, and then fasten the whole thing in an empty frame, a bee space from the topbar. Bore a hole through the topbar for a funnel to use in filling the trough with syrup. Place this feeder frame with its foundation beneath between two empty combs in the hive, and always keep the feeder full.

For the last fifteen years I have saved 97 per cent of my weak colonies in the spring by this plan. The point is this: A very small cluster can not keep up the necessary heat if there is a

cold comb dividing it into two parts. Let this handful of bees cluster all together and you will be surprised at the results.

Beeville, Texas.

THE VALUE OF BEES AS POLLINATORS OF MELON BLOSSOMS

BY W. C. MURDIN

To my way of thinking, gardening and beekeeping should always go together. From the time the vines begin to blossom until the frost kills them, the bees work on them and we have more melons, citrons, cucumbers, etc., than we ever had before we started to keep bees. Last year our vines were all loaded; in fact, some of them had almost too much fruit, and I am sure it is on account of the bees pollinating the blossoms. The bees seem to work on every thing in the garden. Even potatoes, when they are in blossom, are visited.

I have heard complaints from some that bees will "eat" fruit; but they do not bother us in this way. We can not find that bees are troublesome in any way, in fact. Our garden is close to the main road where teams are passing only a few yards from the bees, but I have never heard of any one getting stung. I have found that bees are generally harmless if left alone.

In my work around the hives I have never used a smoker. When I want to do very much work, such as extracting, etc., I select a time when the weather is warm and the bees good-natured. I use gloves and an Alexander veil, however. This veil, by the way, I regard very highly. It is nice and cool, is good protection, and yet one can see easily to do any kind of work.



Apiary and orchard of C. Koppenhafer, in the village of Brownhelm Center, Ohio.

I think that white clothing annoys the bees less than darker-colored fabrics. I have made observations for a long time to determine this point, and I find that the bees do not get stirred up as easily when I have on a white coat. One day last summer Mr. J. Boyd, who has his bees also in this garden, was with me; and while I received no stings, the bees kept stinging his black felt hat.

Gladstone, Manitoba, Canada.

[We are sure you would find it easier to work with your bees if you used a smoker. It is not necessary to blow smoke over the bees continually; but very often a little whiff of smoke at the right time prevents a general uprising, and enables the operator to go right on with the work without letting the bees find out they can have things all their own way.—Ed.]

BEEKEEPING AND FRUITGROWING

BY C. KOPPENHAFER

I have a fruit farm of $7\frac{1}{2}$ acres in the village of Brownhelm Center, located among the trees as shown in Fig. 1. There are over forty colonies of bees which I find a great help in fertilizing the fruit-blossoms. In 1910 I secured \$200 worth of fine honey from 23 colonies, spring count.

Some of my neighbors across the street are making me a lot of trouble, and threatening to compel me to get rid of my bees. I am not able to make them believe that the bees do not spoil their fruit, nor that they are of any benefit in the spring in fertilizing the blossoms. One man in particular said it was an imposition to the neighborhood to have the bees there; and if there was any



Mr. and Mrs. C. Koppenhafer and their family of honey-eaters.

law to make me dispose of them he would take advantage of it. However, for all that we are friends so far as I know. He was exasperated only when the grapes and plums were ripe. For a few days at that time the birds were very bad; and as the bees had nothing else to do, they of course were troublesome. I have over forty plum trees myself, and also some grapes, and I know well enough that it is not the bees that do the mischief. It is also claimed that the bees damage the peaches; but I have my bees right in the peach orchard, and I find that they never work on any except the pecked or decayed ones. I picked all of my peaches without a veil, and never get stung.

The other illustration shows you my family of honey-eating boys. I think the use of honey in the home avoids many a doctor bill. My wife is also of the same opinion. She takes great interest in the bees, and often hives swarms when I am not at home. Amherst, Ohio.

BEES AND ORANGES

BY J. SLIGER

My apiary is located on benches above the ground, because I have a weak back, and I can handle the frames more easily if the hives are up a few inches. In the spring of 1910 I began to build up the apiary and increased from ten to thirty-eight colonies. I intended to paint the front of every other hive green; but other work crowded me so that I neglected it, and, in consequence, I lost a lot of queens which, in returning from their flight, went into the wrong hives. That fall I united until I had twenty colo-

nies, and last spring I increased these to forty-eight colonies.

I have a fruit ranch of twelve acres—ten acres of oranges and about two acres of apricots; but I intend to take these out and put in oranges. I have raised berries of different varieties, but I am taking these out to put in oranges. I have found plenty of work to keep a man of sixty-three years busy.

Redlands, Cal.

THE MISREPRESENTATIONS OF LAND SHARKS AND THEIR VICTIMS

The Truth about Wharton County, Texas

BY W. H. MOSES

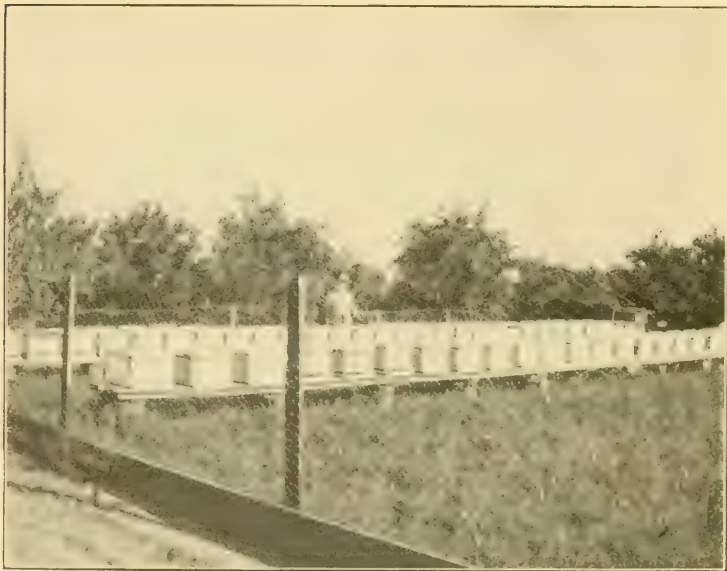
Many northern people are being persuaded to come to the coast country of Texas through the misrepresentation of land agents and others who hold out great inducements to homeseekers, offering them land at about \$45.00 per acre, one-fifth cash and one-fifth per year without interest or taxes, telling them that they can grow two or three crops a year, each worth \$150 to \$200 per acre, and that they can grow oranges, grapefruit, and other things that belong to tropical countries; and that the temperature seldom goes as low as 40.

I have lived here in Wharton County since 1887, and have never seen a winter pass without a freeze. Here is a cold-weather record I have kept: 1899, Feb. 11, began to snow at 2:30 P.M.; temperature 22 at 6 P.M.; 18 at 7 P.M.; Feb. 12, zero at 8 A.M.; Feb. 13, 4 above at 7 A.M.; ice three and one-half inches in a tub in the yard.

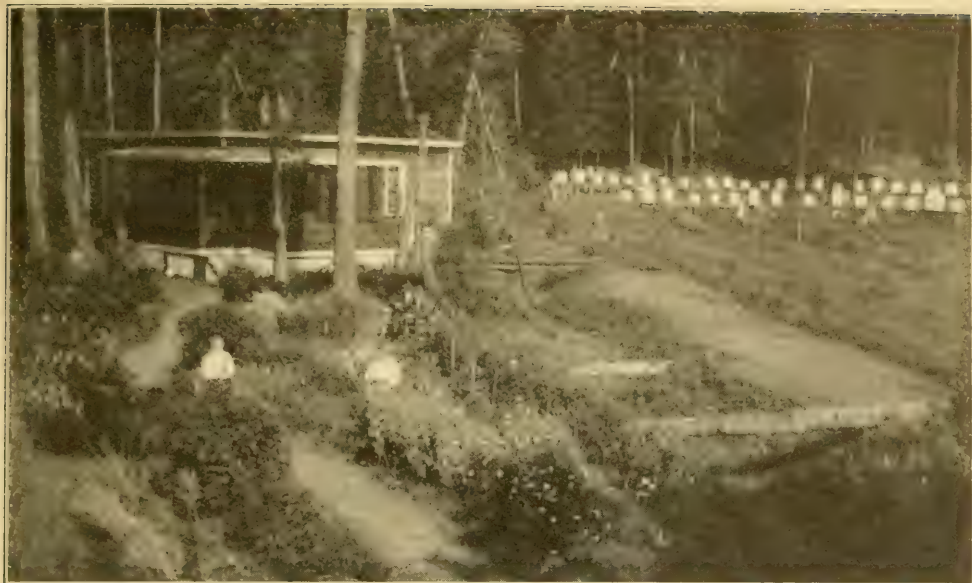
Nov. 3d and 4th, first frost that fall.

1905. — Feb. 2, rained. Norther came up at 2 P.M.; 3, rained; cold north wind; 4, rained. Temperature 30 at 12 P.M.; 5, rained; 32 at 7:30 P.M.; 12, rained last night; north wind this morning; temperature, 36 at 7 A.M.; 26 at 9 A.M.; 24 at 11 A.M.; 22 at 2 P.M.; 20 at 6 P.M.; 13, temperature 16 at 7 A.M.; 14, temperature 20 at 7 A.M. The lake froze over hard; will hold me up (175 lbs.). March 20 and 21, frost; temperature, 32—34.

1907.—One rain in January; one rain in February; one frost this winter — the warmest



J. Sliger's apiary, Redlands, Cal., which he runs in connection with an orange ranch.



Summer home of S. Geo. Stevens, surrounded by the birds, the flowers, and the bees.

and driest winter in 20 years. Bees gathered pollen Jan. 8. March 15, bees very strong.

1909.—Jan. 31, no rain since Dec. 20. Only one freeze and three frosts this winter.

Feb. 14, norther struck at 12 M. Temperature, 56; 32 at 7 P.M.: 15, 20 at 7 A.M.; 20, bees suffered a great loss in young brood.

1911.—Jan. 1, bees gathering pollen today. Temperature 65 at 10 A.M.; 2, cloudy north wind; 30 at 10 A.M.; temperature 24 at 4 P.M.; 3, 12 at 7 A.M.; June 13, temperature 110 at 2 P.M. on my porch.

1912.—Jan. 11, temperature 60; bees flying nicely; 12, north wind blew last night, about 8 P.M.; temperature, 18 at 11 A.M.; 13, temperature 10 at 8 A.M. Ice one and one-half inches thick on canal at Lane City.

The boys are having a fine time on the ice. Two boys from Ohio think it is fine, but both broke the ice and went into water about two feet deep.

Lane City, Tex., Jan. 14.

LIVING CLOSE TO NATURE

BY S. GEO. STEVENS

Our first swarm of bees came to us in July, 1910; and, not knowing much of bees, I divided them and made two colonies. In the fall I took 50 lbs. of surplus comb honey from them, and wintered them in good shape on their summer stands.

This summer we made ten colonies of them with some little help from other bees I bought in August, and this fall I got about 100 lbs. of honey, and all the hives were in good shape for winter—no feeding. With what I bought we have 32 colonies in all, and will winter them on summer stands.

We have about our cottage a sort of combination of insect and bird life, in both of which we are very much interested. We feel that our first colony of bees was largely the cause of our interest in the birds.

Duluth, Minn.

[Our correspondent is a great friend of the birds, and he has tamed them until many of them will fly from the trees to eat from his hand. He has done a vast amount of good in writing articles for the press, condemning in no uncertain terms the boys and men from the cities who take a fiendish delight in killing "these creatures who come to live with us, and who make life just that much more worth living."—Ed.]

THE RIPENING OF NECTAR

Does the Body of the Honey Vary According to the Humidity of the Season?

BY T. P. ROBINSON

Arthur C. Miller, page 23, Jan. 1, tells how bees ripen nectar. I am not particularly familiar with the bee's way of depositing her load in the cell; neither do I know that bees ever take up this nectar again except to deposit it in a more convenient place. But I doubt very much whether they make a practice of taking it up for the special purpose of curing it; and my doubts are based on the fact that the body of my honey varies just as does the humidity of the season. This variation in body is further due to the strength of the colony.

I have known many times when the evaporating or drying out of the water was almost entirely omitted, and the honey soured in the



The three best industries of Pecos Valley, New Mexico, fruit, bees, and alfalfa.

combs. I have known this souring to be so bad that the combs would "burst" in the hive and the honey would run out freely. But these extreme cases have been largely confined to weak colonies. It is certain that the bees were bent on gathering all the nectar possible during the day, and were not numerous enough to fan it dry at night nor to create sufficient heat.

THE FIELDERS DEPOSIT THE HONEY IN THE CELLS.

In the editor's footnote, p. 24, Jan. 1, he says that it has been repeatedly stated that bees on returning from the field do not deposit their nectar directly in the cells, but pass it around to bees in waiting which cure it before depositing it. Allow me to give contradictory evidence.

Five years ago I had a yard of 100 stands of bees without food, and on the point of starvation. It had been raining for eight days, and all the colonies had been kept indoors. The weather had been dry for five weeks previous, and for ten days before the rains the bees had been gathering just enough honey to live on day by day. Brood-rearing had entirely ceased. I was watching, and was in readiness; but hoping that the weather would become fair I delayed feeding as long as possible.

I observed that the bees were carrying out their last cells of drone and worker brood, for they had a little; so I took 25 pounds of sugar and 3 gallons of water and made a thin syrup, placed it out for the bees, and in 30 minutes it was all in the hives. I made an examination 35 minutes after placing out the food; and what did I see? I found this fluid in varying amounts in the cells in the brood-box from the deformed cells on the top bar to the imperfect cells on the bottom bars. The sole idea of the bees seemed to be to get the stuff in the hive.

That night a great humming was heard, for it was in May. Now notice! Twenty-four hours later the queens had begun to lay, and this nectar in the meantime had been

gathered up and placed in proper rings for the brood nest just above the eggs.

The next day, 48 hours after the first feed, I gave them 1 lb. a colony instead of half a pound, as at first, and the bees made a worse scattering of it in the hive than before, but by the next day all was gathered up and placed in proper order. No, bees do not pass the stuff around, but deposit it at once and go for more.

It doesn't take much of a shake to scatter new nectar all over, then if combs are tilted too much the nectar will run out on the ground; but it tastes unlike honey, being watery and of strong flavor.

DO BEES "ROAR" WITH THEIR WINGS?

Mr. Miller doubts whether the great roaring could be caused by the wings of one colony of bees. I emphatically disagree. A good swarm of bees on the wing (and the bees do not all go with the swarm) can be heard plainly 100 yards away on a still day; but the hum of a colony at night would not seem so loud 50 ft. away.

Bartlett, Tex.

[That laden bees give their loads to *other* bees was not our statement, but an old current notion. We merely mentioned it in our footnote as an illustration of how old theories have to give way to later and more careful observation. Your statement on the point supports that made by A. C. Miller, which is doubtless right.—ED.]

A 200-COLONY APIARY IN A NEW MEXICO ORCHARD

BY J. S. HIGH SMITH

The illustration shown herewith is a picture of my apiary of 200 colonies of fine Italian bees. In 1910, by the 1st of September we had over 8000 pounds of surplus comb honey from alfalfa, which was very fine, being clear and white. I began with only a few colonies in the spring of 1908.

The picture represents three of the best products of Pecos Valley—honey, fruit, and alfalfa. The apiary is in a small four-year-old apple orchard and is surrounded by fields of alfalfa.

Artesia, New Mexico.



THE HONEYBEE AS A FERTILIZING AGENT

BY DR. E. F. PHILLIPS

The honeybee is known widely as the producer of honey, and it is recognized that this makes it one of the minor agricultural animals. The total value of the crop produced is not fully realized, and it is often a surprise, even to well-informed beekeepers, to learn that the average annual honey crop of the United States is worth about \$20,000,000. The American farmer produces crops of such gigantic proportions that a branch which can not be discussed in the millions is scarcely worthy of consideration. Even in this galaxy of wealth the honey-producer has no reason to be ashamed of his specialty, and he may be further congratulated on the fact that his field is just beginning to be occupied. We can not yet foresee an overstocking of the country, and an overproduction of honey will not take place until we are producing at least ten times what we do now.

The subject which is here announced at this time does not, however, deal with the direct benefits which accrue to American agriculture through the offices of the honeybee, but to what may be styled the indirect benefits. These are recognized by specialists, but are passed over unnoticed by the average farmer or citizen, and it is to recount the indirect benefits that this subject is assigned.

POLLINATION OF FLOWERS

As is well known, blossoms, before they set, must be pollinated. That means that pollen from the anthers, or male portion of the flower, must reach the stigma, or female portion. Different plants exhibit wide variation in the arrangement of these parts, and it may be well to recount some of these different plans. In some cases the male and female organs are in separate flowers, as in the case of corn, the male flowers being the tassel and the female flowers resulting in the ear. In other cases the types of flowers are borne on separate plants, as in the case of the mulberry.

In the majority of plants, both anthers and pistils are found in the same flower; but even here an extremely wide variation is found. In some cases the anthers ripen earlier than the pistil, so that the pollen produced is ineffectual in producing fertilization of that particular flower. This is shown in the fireweed, or willowherb, which is an important honey plant, especially in Northern Michigan. The reverse condition in which the stigma matures first observed in the common figwort *Scrophularia*

nodosa, and to some extent in horse chestnuts.

In other cases, the anthers and pistil mature at the same time; but because of their relative position, self-fertilization of the blossom does not occur. Other arrangements of this kind might be mentioned; but enough has been said to indicate that flowers are often so arranged that self-fertilization is impossible. In some cases of pears and plums it has been shown that the pollen is ineffectual in fertilizing the flower, even if placed on the stigma. These arrangements all confirm the popular belief in the dangers of close inbreeding, and point to the desirability and often the necessity of cross-fertilization.

Fertilization of plants occurs in two general ways. Plants like willows, pines, oaks, and birches, and, in general, plants whose flowers are inconspicuous and often not even recognized by the layman as flowers, are so constructed that pollen is carried by the air currents from the anthers to the pistil. The pollen of such plants is light and dry. Most flowers, however, are not of this type, but require some agent to carry the pollen, and these agents are usually insects. Without the kindly offices of insects which are despised as an order of animals by the majority of people, our fruit crops would cease to be, and the flowers which abound would no longer bloom.

RELATION BETWEEN PLANTS AND INSECTS

It may also be said that plants have a greater appreciation of insects than we have, for we see the most wonderful arrangements for attracting insects to the flowers so that their visits will result in cross-fertilization. The pollen is not intentionally carried and put in the right place, but is transported on the hairs or otherwise as the insect goes from one flower to another. Insects go to flowers to gather pollen or nectar to be used as food at once, or to be removed and stored, as in the case of the honeybee. Pollen is produced in such abundance as to act as an attraction to pollen-feeding insects, and still leave a sufficient quantity to insure proper fertilization. Nectar acts also as an attraction, and probably serves no other purpose to the flower.

The question of what insects are most important in carrying pollen has not been sufficiently investigated. In the comprehensive investigations of Müller, he found that in low Germany 2750 out of 6231 visits of insects to flowers observed were made by *Hymenoptera*, and of this number 2191 were by *Apidae*, the family to which the honeybee belongs. He frequently refers to the fact that on some plants the honeybees and bumblebees play "by far the most important part in fertilizing our (German) indigenous flowers." Waite, in his bulletin on "The Pollination of Pear Flowers" (Bul. 5, Div. of Veg. Pathology, U. S. Dept. Agr.), mentions a large number of species of insects which visit pear blossoms, but says: "The common honeybee is the most regular and important abundant visitor, and

probably does more good than any other species."

In an article read before the Ontario Beekeepers' Association in December, 1900, by the late Dr. James Fletcher, he said: "It can be shown that, owing to its size, weight, and habits, no insect is so well calculated to ensure the fertilization of fruit-blossoms as the honeybee, which flies rapidly from plant to plant, and, by running over the flowers in search of pollen or nectar, brushes off the pollen and carries this vitalizing element on the hairs of its body to the next flower visited. The habit of the bees, which has frequently been noticed, of confining the visits, when collecting largely to the same kind of plant, is taken advantage of by the beekeeper to store up at certain seasons particular kinds of honey, such as apple, raspberry, basswood, clover, and buckwheat honeys. This habit is also manifestly advantageous to the plants on account of the pollen which is carried by the bee being of the kind necessary for the fertilization of its flowers, which could not be affected if the pollen were that of some other kind of plant."

In some work done at the Michigan Agricultural College it was shown that, of all the insects collected on apple trees in bloom, none were so abundant as the honeybee. On the other hand, similar collections made at the Connecticut Experiment Station at New Haven showed very few honeybees. The latter results may be explained by the fact that, in the preceding winter, over seventy-five per cent of the colonies of honeybees in that section of the country died, and by the fact that bee diseases had probably further reduced the number of bees in that section, as they are abundant in that State. Moreover, we should not expect to find many bees in a city on the seashore. The growing of cucumbers under glass is an important industry in Eastern Massachusetts and in other parts of the United States. The Massachusetts cucumber-growers annually use about 1000 colonies of bees in their greenhouses to pollinate their blossoms, in place of the former method of pollinating by means of a camel's-hair brush.

While the honeybee is, perhaps, no better equipped than other insects, especially other bees, for carrying pollen, there is one respect in which it outranks all others as a valuable asset to the fruitgrower. We are not able to propagate other insects in quantity, and introduce them to orchards at the proper time; but it is a very simple matter to carry in colonies of bees to insure a crop, if the weather is fit for bees to fly. Many orchardists realize this, and keep bees solely for the benefits derived from cross-fertilization of the fruit-blossoms.

COMMON INTERESTS OF THE BEEKEEPER AND FRUITGROWER.

The interests of the beekeeper and of the fruitgrower are identical. In the past there has arisen from time to time bad feeling between these two classes of farmers. The fruitgrower claims that the bees destroy his ripe fruit; but this has been entirely dis-

proven. Bees never suck ripe fruit unless it is previously punctured by birds or insects, such as wasps, or unless it is decayed. On the other hand, the beekeeper claims that the fruitgrower sprays his trees while they are in bloom, thus killing the bees. This procedure is not recommended by any entomologist, and is not practiced by well-informed orchardists. It is prohibited by law in New York and in some other States. Cases of this antagonism are still to be found, but they are becoming more and more rare. Let us hope that the time will soon come when the beekeepers and fruitgrowers will meet in common conventions to discuss their problems in common.

The production of the millions of dollars' worth of fruit in the United States depends largely on insect pollination; and no insect is so important in this work as the honeybee. It is a most conservative estimate to claim that the honeybee does more good to American agriculture in its office as a cross pollinator than it does as a honey gatherer.

Washington, D. C.

HOW POLLEN IS COLLECTED

The Part Played in the Process by the Auricle

BY F. W. L. SLADEN, F. E. S.

The pollen dust gathers on the body hairs of the bees as the result of the visits paid to the flowers. These hairs, as seen under the microscope, are branched, and therefore are admirably adapted to hold the pollen.

In the bumblebee (and probably also the honeybee) the pollen dust in the hairs on the thorax is collected on brushes on the inner sides of the metatarsi, or basal joint of the foot, of the *middle* pair of legs, which are moistened with honey from the tongue to make the dust cohere. The pollen dust in the hairs on the abdomen is collected on brushes on the inner sides of the metatarsi of the *hind* legs, and this is probably moistened by rubbing the hind legs together.

After this the pollen is transferred to the corbicula (or pollen-basket) on the tibiae of the hind legs, where, as every one knows, it accumulates into a great lump as the result of repeated contributions from the metatarsi. But how does it get there? It is evident, as Cheshire observed, that the pollen on the right metatarsus is transferred to the left corbicula, and the pollen on the left metatarsus is transferred to the right corbicula. Cheshire supposed ("Bees and Beekeeping," 1886) that the metatarsus discharges its pollen on the corbicula by scraping its brush on the upper side of the tibia; but I find that this is not the case. The pollen is scraped off the metatarsal brush by a comb (*c*) situated at the end of the tibia on the inside, and it passes into a small concave receiver (*d*) that joins the comb; then, when the leg is straightened, a projection on the metatarsus called the auricle (*e*) closes upon the receiver, compresses the pollen,

and at the same time forces it out to the lower end of the corbicular, which is here slightly depressed and almost devoid of hairs. The compression of the pollen in the receiver is an essential part of the process; for loose pollen grains such as occur on the metatarsal brushes would not hold together in the corbicular. In the bumblebee the angle between the surface of the receiver and that of the corbicular is obtuse, and the compressed pollen easily passes from the one to the other; but in the honeybee there is a sharp angle at the corner, and the auricle bears a fringe of hairs (*f*) to guide the stream of pollen to the corbicular; also the honeybee's auricle is evidently pressed back by the pollen, for it has no other means of escape.

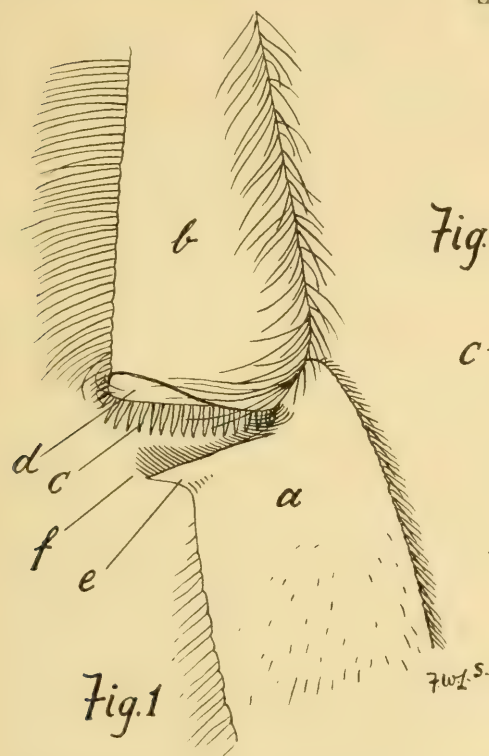


Fig. 1.—Juncture of tibia and metatarsus in hind leg of worker honeybee, outer side.

Fig. 2.—Diagrammatic section of the same, showing mode of conveying pollen.

a, metatarsus; *b*, tibia; *c*, comb; *d*, receiver for pollen; *e*, auricle; *f*, fringe of hair on auricle.

I forced a queen bumblebee to relax, and, after placing some pollen obtained from a comb taken out of one of my hives in the receiver, I straightened the leg. The pollen was immediately delivered to the corbicular. I was struck with the freedom of action of the joint, and noticed that the auricle could be placed in the receiver in various positions, so that it can not only compress pollen there, but it can scrape out the receiver, and, on the other hand, can deliver the pol-

len high up on the corbicular. In the honeybee the joint works still more freely. The fact that, in the bumblebee, the pollen always begins to collect at the apical end of the corbicular, is now clear, and we see why the corbicular is so smooth and bare, for the pollen actually slides up it.

It is a significant fact that, although the corbicular is surrounded with a fringe of stiff hairs which act, as Cheshire observes, like the stakes that the farmer places round the sides of his wagon when he desires to carry hay, this fringe is interrupted at the spot where the receiver discharges its pollen on the corbicular. In the bumblebee the entrance here to the corbicular carries only about three stiff hairs. These hairs are short

and upright, and widely separated from one another, and are some little way inside the entrance. It is evident that their function is to provide a means of attachment for the pollen until the lump has grown large enough to be enclosed between the hairs at the sides of the corbicular. The entrance to the corbicular, in the bumblebee, densely dotted with fluff (under the microscope mossy hairs) which also probably help to hold the pollen. In the honeybee there are no stiff hairs, and very little fluff in the entrance to the corbicular.

In the honeybee the long hairs on either side of the entrance to the corbicular form a wide and shallow arch over it. The object of this arch is, no doubt, to help to support the lump of pollen on the corbicular without interfering with the passage of fresh pollen to the corbicular. The arch also helps to guide the pollen to the corbicular. In the honeybee the arch is less pronounced, and consists chiefly of hairs from the lower side, and these are so long as to

stretch almost across the tibia.

These facts add an interesting page to the wonderful story of the bee that is not given in our text books. How often have we seen the bees humming around the flowers, busily scraping their dangling legs together, and every now and then giving them a little jerk! At each jerk a minute quantity of pollen is tucked up on the corbicular.

On examining the workers of several spe-

cies of *Melipona* from South America in my collection, I notice that, although they possess a very wide corbicula and a comb, the auricle is absent, and the metatarsi are extremely narrow at the base. Apparently, therefore, in these bees, the pollen is not compacted, but is scraped on the corbicula by the comb in a loose state, and the corbicula bears a beautiful rack, like a long-toothed comb, to retain it. The shape of the metatarsus in some species, however, suggests that it may be bent up so that its upper edge presses against the end of the tibia to form a pollen-press.

In the solitary bees there is no corbicula, the pollen being conveyed on brushes situated either on the hind legs or on the under side of the abdomen.

SOME SPECIFIC OBSERVATIONS; HOW HONEY IS MADE USE OF.

On Feb. 11, a mild and sunny day, my bees were working busily on the winter aconite, *Eranthis hiemalis*; and by watching them I was able to verify my opinion as to how the pollen is gathered as mentioned above. I watched one bee for over five minutes, rifling flower after flower. During this time its loads of pollen increased in size considerably; but it did not once cross its hind legs, rubbing the metatarsal brushes on the edges of the opposite tibiae, as Cheshire supposed, although it frequently rubbed or scraped the inner sides of the metatarsi against one another, the *motion being always longitudinal*.

I noticed that the pollen dust was gathered direct from the anthers on the metatarsal brushes by the bee crawling about among the stamens and digging its legs in among them. In large open flowers, such as the winter aconite and the blossom of the apple, cherry, and plum, the anthers of which are accessible to the hind legs, the pollen dust is probably always gathered in this way, namely, direct upon the metatarsi.

But what makes the pollen dust cling to the metatarsal brushes? If a lump of pollen from the corbicula of a bee be examined, it will be seen that it consists of pollen grains made into a paste with some liquid; and if the lump be tasted it will be discovered that this liquid is honey. Obviously, the metatarsal brushes are moistened with honey, and so the pollen dust adheres to them. It seems plain, too, that the honey comes from the tongue. But though I watched my bees carefully I never saw them lick their hind metatarsi, and I do not think that the tongue could reach the hind metatarsi. Indeed, the only way the bee could convey honey from its tongue to its hind legs would be through the agency of the fore and middle pairs of legs. The tarsi and metatarsi of the fore legs are covered with stiff bristles, which are adapted to receive the honey, and the metatarsi on the middle legs are provided with brushes of stiff bristles which are similar. In watching the bees working on the winter aconite I saw their middle and hind metatarsi rubbed together on several occasions, and,

in several bees I killed, the brushes on the fore metatarsi were saturated with honey. But this rubbing of the middle and hind legs together was seen to take place far too seldom (namely only three times during the whole of my observations, which lasted, I should think, nearly half an hour) to moisten effectively the pollen grains, and thus I am led to conclude that the moistening of the hind metatarsi is generally carried out during the flight from flower to flower. Indeed, if one thinks of it this flight provides a most suitable interval in the work of the proverbially busy bee in which to discharge this apparently most necessary duty; and the bee, by acquiring the instinct to moisten its metatarsi, then would be able to do it mechanically, just as often as it is necessary. One must remember, too, that, during flight, the legs are free.

I must ask for the indulgence of the reader in dwelling so much on what I imagine, and so little on what I have actually seen; but this is a case in which the movements made by the bee are too quick to be followed by the eye, and I think that an examination of the pollen-collecting organs, a study of the bees in the flowers, and the following of my argument, will bring conviction that the process of pollen-collecting is very much as I have described it.

Ripple Court Apiary, England.

NEW LAW ON SPRAYING IN OHIO

What to Do if an Orchard is Too Large to Spray all the Trees when they are Not in Bloom

BY N. E. SHAW

Chief Inspector Division of Nursery and Orchard

[We wrote Prof. Shaw regarding the new spraying law in Ohio, and his reply follows.—Ed.]

The new law does not become effective until May 31 of the present year. Spraying is required between the 1st of November and the 30th of April. This is for the destruction of scale insects; and any solution which is used for this purpose can not be applied after foliage has appeared or buds have opened, because of the injury that would result. The material used for these applications would of necessity have to be the lime-sulphur wash, miscible oil, or some similar solution, and not an arsenical poison.

I have received many inquiries from bee-men concerning the spraying of fruit trees while in bloom. Most of them are under the impression that there is a law in this State against spraying at this time; but, of course, such is not the case. Neither the Experiment Station at Wooster, the College of Agriculture, nor this department, all of which send out a spray calendar, advocate spraying when trees are in bloom. In fact, we lay stress upon the fact that no application should be made at this time, but after the blossoms have fallen, or at least most of them. Recently one of our large commercial orchardists, whose acreage is too

large for his spraying equipment, made the statement that he intends to begin spraying for codling worm before the blossoms have begun to fall, in order to cover his entire orchard in proper time.

I called his attention to the fact that he would, no doubt, receive considerable injury from such an application, to which he replied that it was about six of one and half a dozen of the other; because if he did not get over his entire orchard the unsprayed part would be of no use to him.

I told him that, if his plan were very generally adopted, it would probably lead to the passage of a law prohibiting spraying at blooming time. I do not think that, should he undertake to do this, he will be very generally followed by others, because most of them have suitable spraying equipment for their needs; and while this man has been looked up to considerably in the past, and has had his methods copied by others, he does not hold the same place as an orchardist in the estimation of others at the present time.

I assure you I shall be glad to do whatever I can to enlighten our fruitgrowers on this matter, and hope that we shall never need a law to prevent spraying while trees are in full bloom.

In regard to this compulsory-spraying law I will say that the same is not under the control of this Division, and we are in no wise responsible for its passage.

Columbus, O., March 1.

ARE HONEYBEES OF ANY VALUE TO THE ORCHARDIST?

How Many Colonies are Needed per Acre of Fruit?

BY BENJAMIN W. DOUGLASS

The Greenhorn had just purchased a small orchard and had started out as a full-fledged convert to the "back-to-the-soil movement." Unlike many such greenhorns, he did not consider that he knew all there was to be known about farm and orchard work. He knew enough to know that you can not learn horticulture simply by reading books in the back parlor, and that fruitgrowing requires more than a theoretical knowledge in order to make it a success.

Since I had known the Greenhorn for many years it was but natural that I should be asked to contribute my share of information toward making the new orchard a success, and I accordingly made a careful inspection of his place soon after it was bought. This was in the spring of the year, shortly after the apple trees had blossomed—and they had blossomed lavishly. To the owner's surprise, however, the stand of fruit was exceedingly poor, although there had been no frost to injure the flowers.

"It seems to me," said I, "that your only trouble here is a lack of pollination due to the absence of bees."

"But," he replied, "I have a colony of

bees up under the grape-arbor at the house, so that surely can't be the reason for the trouble."

So I had to analyze the situation for him; and, briefly, this is what I said:

"Your house and the single stand of bees are nearly a quarter of a mile from the main part of this orchard. The past weeks have been very wet and cold, although not cold enough for frost. The hours of sunshine have been very brief; and during the period when the trees were in bloom the sun shone for only a few minutes at a time. Bees will not fly in such weather, or at best they fly but a short distance from their hives. Consequently your crop has failed because you did not have numerous colonies of bees scattered through your orchard. If you had done so the bees would have taken advantage of every minute of sunshine and given you a full crop where you now have a failure. If my theory in this is correct we should find that your trees near the house, in the 'family orchard,' have more fruit than these in the main orchard."

We at once investigated, and found that the trees near the house had set a very fair crop of apples. In the main orchard there were more apples near the house than there were on the further side of the orchard; for, as I have said, in that part the crop was a failure.

"Well," said the Greenhorn, "how many colonies of bees should I have on my twenty acres of orchard? and how close together should they be placed? or should they all be placed in one spot, such as the center of the tract?"

Here was a question that I could not answer with any degree of finality. It is impossible to draw a definite conclusion regarding the exact number of bees that should be kept in order to assure good pollination. Some seasons very few bees will suffice, while it is possible to imagine a blossoming season when *any* quantity of bees would fail to provide pollination. After a long series of observations on this subject I admit that I am still almost as far from a definite conclusion as I was at the start.

In the spring of 1911 I assigned one of my assistants to a study of the insects concerned in the pollination of the apple, pear, and cherry. Without going into his results in detail I will quote from field notes made at different times during the season:

April 20.—Warm and clear. An abundance of wild bees, and flies of various species. Honeybees present in large numbers.

April 22.—Partly cloudy; cold and windy following a rain; native species of bees and flies very scarce; honeybees fairly common.

May 9.—Warm and clear. Many small native bees on cherry; in numbers they exceeded the honeybees. On the apple the honeybees were the most numerous, exceeding all other species. Syrphid flies were quite common throughout the orchard.

These notes and studies were made in an orchard where there were about seventy col-

onies of bees. Comparative notes made on other orchards in the vicinity on April 22 showed that very few honeybees were to be found. This proved conclusively that the presence of the apiary in the orchard was of material value in securing pollination.

There can be no rule as to the definite number of colonies that should be kept for each acre, because of several variable factors which enter into the problem. In the first place, individual colonies of bees will vary, not only in strength, but in the aggressiveness of the members of the hive. Some colonies will range better and cover more ground in unfavorable weather than other colonies. The main difficulty, of course, is due to the fact that no two seasons are exactly alike, and the number of colonies that would be satisfactory one year might be totally inadequate the next season.

During an unfavorable season a large number of colonies close to the trees may insure a full crop when all the other trees in the neighborhood fail. This was repeatedly shown in the orchard of Mr. George S. Demuth, at Peru, Indiana. Mr. Demuth was primarily a beekeeper, and his apiary was located in a small orchard. Year after year this orchard set a full crop of fruit, even in cold rainy seasons when the neighbors all thought that the fruit was killed by frost. It is quite probable that no small part of the frost-killed fruit is simply injured by a lack of pollination. It is certainly true that fruit that is well pollinized is more vigorous, and consequently more resistant to insect and fungous injury, later in the season.

To return to the Greenhorn. With a persistence that was most aggravating, he insisted that I had avoided his direct question as to the number of colonies that he should keep per acre, and how they should be spaced. In answering this direct question I will simply say that, for my own use, I am intending to keep bees in the orchard at the rate of one colony for each two acres of orchard. For 140 acres of orchard I plan to have 70 colonies. These will not all be kept in one place, but will be divided up into groups of ten or fifteen each, and will be placed at advantageous points about the orchard. I would avoid stringing the hives over a great space in the orchard, as there are some men who are afraid of bees, and there may be such a man in one of your gangs at spraying time. If the bees are bunched in one small locality the trees around them can be left unsprayed until late in the evening, and the work can be done after the bees are through flying. Under no circumstances should the trees right around the apiary be neglected because of the bees. In fact, they soon become accustomed to having people around them, and it is seldom that they cause any trouble.

SOME MISCONCEPTIONS ABOUT SPRAYING

Every season we have any number of accounts of how some farmer has killed all the bees in his neighborhood by spraying his fruit. Sometimes such a report is true. In the great majority of cases, however, it

is not. When the practice of spraying first came into use a number of years ago, some manufacturers of spray-pumps published the directions for spraying in such a way that many farmers were led to an incorrect notion of the process. From this first misinformation has come much trouble, and many explanations have been needed to clear matters up between the fruitgrowers and the beekeepers.

As a matter of fact, the interests of the fruitgrower and the beekeeper are identical in many respects, and there is no cause for any misunderstanding between the two industries. Many fruitgrowers are seeing the value of bees in the orchard, and many beekeepers are beginning to realize the value of the honey harvest from the fruit bloom. No fruitgrower who pretends to know the first thing about spraying will attempt to spray his trees while they are in bloom. To do so would not only injure his friends the bees, but would also result in some actual damage to the blossoms.

WHEN TO SPRAY

The first spraying should be applied before the buds open, at a time when the bees are not interested in the trees in any way. The second spraying comes *after* the petals have fallen; also a time when the bees are no longer interested in the orchard. Bees attend very strictly to their own business; and after the nectar has dried up in the flowers they are a dead issue so far as the honey-gatherers are concerned. It is the second spraying that usually causes the fight between the orchardist and his beekeeping neighbor. Very often the neighbor will become alarmed as soon as he sees the spray-machine at work, and in some cases he will claim that every dead bee that he finds for weeks to come was killed by the arsenic spray.

A NEW SPRAYING SOLUTION THAT IS REPELLENT TO INSECTS

During the last two seasons a new spray material has come into very general use over the country. This is the dilute lime and sulphur solution as a substitute for the old Bordeaux mixture. The Bordeaux was simply a mixture of copper sulphate and lime, and it was used in connection with the arsenate of lead or with Paris green. The new sulphur spray requires the addition of the arsenic, just as the Bordeaux did; but it possesses the added advantage to the beekeeper that it is repellent to all insects. The smell of the sulphur is so strong that trees sprayed with it are notably free from insects of all sorts during the period through which the smell lasts. In this way the bees are repelled along with certain injurious insects (notably the plum curculio). This repellent action of the lime and sulphur will no doubt go a long way toward easing the fear of the beekeeper. For my own part I feel so sure of the repellent value of the sulphur that I will venture the assertion that no harm would result to the bees, even if the orchard should be sprayed while in full

bloom. Of course it would be highly undesirable to spray the trees when they are in full bloom; but I simply make the statement to show my confidence in the repellent value of the solution.

I should be very glad to hear the last of the controversy concerning the killing of bees by spraying; but I know that there will always be beekeepers who will not read, and fruitgrowers of the same class; and, further, that there will always be the individual who is ready to pick a fight with his neighbor. I have no doubt that the spray-machine will continue to be a sore point with beekeepers for many years, just as the stinging, stealing, and "eating" of fruit by his neighbor's bees will continue to be a thorn in the side of the unreading orchardist.

In conclusion I will say that the Greenhorn bought some bees, thereby improving his chances of success, and, incidentally, opening the way to much ultimate pleasure, although we will admit that beekeeping for the beginner is not an unmixed joy.

Indianapolis, Ind.

THE RECENT NEW YORK STATE CONVENTION

Raising Cells without Queen Cups or Grafting; a Simple and Practical Plan for a Honey Producer

BY R. F. HOLTERMANN

Many years have passed since I attended my first convention of beekeepers in New York. I am told it was thirty years ago at Rochester. Many beekeepers I have known have since then fallen by the way to remind us, too, of eternity.

The convention which has just closed at Syracuse, and at which the writer was present (for the New York State Department of Agriculture was largely attended), there appeared to be dozens of men who were operating from 400 to (if I am not mistaken) over a thousand colonies of bees, and I heard of more like them in the State. These beekeepers impress one; they know their business; they are not content with going in well-known and beaten paths, but they are on the outlook for improved methods, be they original with themselves or not. They have an understanding that, to combat ideas, is not to be antagonistic to individuals. The fire may fly in mental combat, but no friendships are disturbed by such conflict. Notably among that class is W. F. Marks and Geo. B. Howe, the latter one of the State inspectors.

Of the many good things brought out at the convention, that which impressed me most was the production of queen cells by a method which does away with the necessity of larvæ transfer or the making of queen-cell cups. In a private conversation the writer had been informed of this process by D. R. Hardy, Burrs Mills, N. Y. It appears that no one present claimed to be the originators of this method; but the New York beekeepers appear among themselves to

have given out the idea on the quiet, and Mr. Hardy, in the kindness of his heart, and out of pity for the uninitiated, had given me the wink.

The plan was made public when Mr. Oscar Dines, of Syracuse, took the floor on the morning of Feb. 1, following Mr. West on the subject, "Some Things I have Seen," and he made us sit up and listen when this method of queen-cell production was described. Mr. Dines stated that he took a suitable comb (or two combs) and inserted it in the center of the brood chamber of the stock containing the queen from which he desired to breed. After the queen had laid in this comb, and the larvæ were ready, the comb was cut to the midrib along the topbar. Then a similar cut was made between the second and third row of cells from the topbar; another cutting between the third and fourth row; another between the sixth and seventh; another between the seventh and eighth row, and so on. The two rows of cells are destroyed to the septum, leaving rows one cell wide with a two-cell-wide space between, over the entire one side of the comb. A phosphorus match is now taken, and in the remaining rows one cell is left intact, and the larvæ in the next two destroyed, and so on throughout the comb. This prevents the joining of queen cells by the bees.

I should have mentioned that, before the comb is cut to the septum, it should be shaved down so as to leave only a shallow cell as in the Alley system.

The comb is now mounted in a rim $2\frac{1}{2}$ inches deep, and as wide and long as the hive. This rim is then placed upon a hive with the comb lying horizontally over the brood nest. The comb is so suspended that the upper side of it is level with the top of the rim, leaving ample room underneath the cut-down comb wall and the topbars of the brood frames for the development of queen cells.

Mr. Dines stated that he had secured 65 fine queen cells by this method at one time by placing the prepared combs and rim on a queenless colony. Mr. Case, of New York (I regret I did not get his initials), stated that, by taking such a comb and giving it to a strong queenless colony three days after taking away all its brood, so that the colony had no other brood or larvæ to care for, he had secured 105 fine cells. The septum of the comb became the foundation for the queen cell. It was thus readily handled. The upper side of the comb should be covered over by pasteboard to prevent the bees from paying attention to the larvæ in the cells. When the cells started are ready, a beekeeper who wants to requeen need only go to the colonies he desires to requeen, remove the old queen, and insert between the frames one of the queen cells inserted in a West cell-protector, and the colony will secure a virgin queen when hatched.

LARGE BROOD CHAMBERS.

Many New York beekeepers are in favor of ample brood-chamber capacity. One of

them, I do not remember who, stated that Mr. McIntyre, the well-known Californian beekeeper, made it a point to buy queens from queen-breeders who use large hives, as he held that queens in such hives are likely to be more prolific, and are likely to throw progeny with better laying powers.

Brantford, Ont.

[The plan here described is similar to the Alley method that was given some 25 or 30 years ago. The principal difference is in the manner of giving the prepared comb to the bees. Alley hung the comb in the regular way in the hive; but in the plan here described, it is suspended *horizontally* above the brood nest.

If we are correct, Dr. E. F. Phillips, of the Bureau of Entomology, gave this plan to the York State beekeepers some two or three years ago. Whether he or they originated the idea of placing the comb horizontally above the bees, we can not say. In any event, the plan has the merit of avoiding the use of queen cups and of grafting; and in the hands of the average beekeeper it would probably give better results than the grafting plan with queen cups.

A caution should be entered against trying to get too many cells at one time from a colony. We have raised a good many thousands of queens; but our experience teaches us that the average colony will not take care of and feed *well* more than two dozen cells. They will build as many as a hundred; but queens from such cells are apt to be short-lived or poor layers.

This method was described by Mr. Friedman Greiner on page 170, 1911; but the very fact that it is giving such general satisfaction to our friends in New York would indicate that another description, as given above, will not come amiss.—Ed.]

HONEY-CROP REPORTS

BY WESLEY FOSTER

While attending the National Board meeting, some one (I think it was Mr. Pettit) asked me why Western beekeepers held back their report on crop conditions. I answered in an offhand way that it was, no doubt, because they hoped to get a better price by so doing. I have been looking over the honey reports that were sent in, and I do not find many that are very misleading. I am surprised that my report in the September 1st GLEANINGS, 1911, came as near being right as it did, for it was sent in before August 15. It is not possible to tell accurately about the alfalfa crop in this latitude until after August 1. Often the bees will do nothing, scarcely filling their hives and doing no swarming; then the second growth of alfalfa comes in bloom about August 1, or perhaps a little earlier, and a fair surplus is made in August and September. I should not want to give a report on the honey crop until the middle of August; and then if the weather remains hot, and the alfalfa is yielding well, the crop may be doubled in the last ten days of August.

In GLEANINGS for September 1 a good report was given of the California crop, although the crop was not as good as was expected. Was the trouble that the beekeepers did not offer their crop for sale? I reported that the Colorado crop was larger than for some years, and I now think that was a little strong, although we still have a good deal of alfalfa honey (extracted) to dispose of. Without doubt more extracted honey was produced than the market could handle, and altogether too little comb honey for the demand. Again, in GLEANINGS for October 15 a bountiful crop is reported from California. Was not part of the trouble because the producers did not offer their honey for sale soon enough? Idaho had a light crop in the west-central part, while in the Twin Falls and Idaho Falls districts it was good. The crop seems to have been good in Utah and Wyoming.

The production of honey is increasing rapidly in the West, and new districts become of shipping importance almost every year. Many of these beemen are new, and do not look for a market until the honey is all harvested. A study of conditions in marketing should be made before rushing extensively into beekeeping. There are, undoubtedly, many inter-mountain regions which would produce a fine white article of comb honey, and there would be more money in comb honey than in extracted with market conditions as they are at present.

I think that Easterners are, perhaps, as much to blame for market conditions right now as are the Western producers. In the East, on account of the poor crop they put the price up; and just as they got things started at high prices then Western honey began to come east and knocked the bottom out of the market.

In regard to Western market reports as a whole, nothing definite can be given before September or October. Many of the producers do not finish extracting until November, and it is hard to judge of the amount the supers will yield. Then we never think of offering much of our honey, especially the extracted, before the harvesting is pretty well out of the way. In case of comb honey some of us have learned to get it off as soon as possible, and often that is not early enough for the best price.

As an example I figured that one apiary would run close to 100 pounds of extracted honey, per colony, spring count. I estimated so much for each super on the hives. We did not finish extracting until November, and found it was only about a 70-lb. crop. We shall have to figure on our crop reports not being in until later, if we want to know the conditions more definitely.

There is nothing more necessary for the stability of the honey market than accurate reports, and a central head to direct the distribution of the carload shipments of honey. The West is big, and its product so large that something will have to be done to hold things steady. This is a need that the new National Association can supply.

Boulder, Col.

IS THE LANGSTROTH FRAME TOO SMALL?

The Size or Shape of Frames Not a Factor in Wintering

BY F. P. CLARE.

As Mr. Simmins' article in the January issue of the *Canadian Bee Journal* may be confusing to beginners, and as Mr. S. invites criticism, I write to draw attention to what appears to me some of the errors in the ideas he advances. He asserts positively that the Langstroth frame is *too shallow for successful wintering, indoors or out, and too small for the honey season in any locality*, and then, in the next breath, urges beekeepers to use a frame of less than three inches greater capacity. Laughable, is it not? Is it, Mr. Editor, a matter of "location making the difference"? Scores of us have proved here in Ontario that successful wintering is secured, *every time*, by the quantity and quality of winter stores, and not by the *size or shape of the frame*.

With an experience of over 30 years, with (at one time) 260 colonies of bees in 15, 12, 10, and 8 inch depth hives, I assert positively that, with an abundance of good stores, in a proper repository, bees will winter as successfully on the Langstroth frame as upon any frame with which I am acquainted.

If I were starting in the business again I would use no other, and ten of them in a hive. The points of superiority are many. Ten-inch lumber for the construction of hives can be procured quite readily, which is not as true of a deeper hive. When it comes to securing the harvest, by tiering up as well as placing in winter quarters, where do you find its superior?

The larger the hive, the greater the quantity of bees produced, and the larger the amount of honey stored, is Mr. Simmins' reasoning. Possibly this may be true of some locations, but it certainly is not true of this part of Ontario. A queen that will keep eight Langstroth frames full of brood will have to lay over 2500 eggs daily for weeks at a time. Where can queens be found that will average better than this? Allowing two frames for honey and bee-bread, we have ten frames which experience has proved are ample for an average queen in most seasons and locations.

Now, if this capacity is doubled, what will be the result? Beebread and brood through both stories, if two stories are used and honey stored in the brood nest that should have gone into the super above the queen excluder. In addition to this, honey will be used by the bees, if not pure Italians, to raise thousands of bees that are too late in coming upon the stage of action to be of any value in securing the crop of white honey. While great numbers of bees are all-important at the right time, out of season they are a detriment.

Mr. Simmins blames the eight and ten frame Langstroth hives for the average crop reported by Mr. Root. Does not Mr. Simmins know that atmospheric conditions,

over which the beekeeper has no control, generally determine the amount of honey stored? Who has not been disappointed in returns when bees were booming at the beginning of the harvest? Is the size of hive to blame for this? Thousands of colonies of bees are still kept in box hives and "gums" in mountainous regions and through the Southern States, and all these pull down the general average; but no intelligent beekeeper considers Mr. R.'s figures as the average of his apiary.

In conclusion, Mr. S., permit me to inform you that a crop of from 200 to 400 pounds of extracted honey has actually been produced by users of the despised Langstroth frame, and by those who have kept their bees in eight and ten frame Langstroth hives.

And now, Mr. S., I want you to take your pencil and figure out the bees that would be in a hive that contains the "equivalent of two 16x10-inch eleven-frame chambers crammed solid with brood."

Allowing $8\frac{1}{2} \times 15\frac{1}{2}$ inches of brood comb to each frame, there are about 2882 inches of brood. Allowing 50 bees to the square inch, the result is 144,100 bees. Now allow as many more bees in the hive to care for the brood and to gather honey, and there will be 288,200 bees or about 60 lbs. of bees. Such a colony should store 600 pounds easily, and the mother of that stock—is she for sale? and what will you take for her? Kindly address at once, and mark the letter *rush*.

Toronto, Canada.

[If Mr. Simmins were more familiar with the diverse conditions in this country, with all shades of climate and temperature, he would not make the statement that a 10x16 frame would enable us to do better wintering than now or to secure more honey. The Jumbo hive, with frames slightly larger, have been sold for years; but there is comparatively little demand for them. More and more the tendency seems to be to get back to the original Langstroth frame. From 1885 to 1890 there was a rage for shallow frames. During the latter part of the '90's there seemed to be a tendency toward the Quinby or Jumbo frame; but years of experience seemed to lead back to father Langstroth. During the early '80's the whole beekeeping world swung from the ten-frame Langstroth to the eight-frame; and now we are swinging back from the eight to the ten. There was formerly a belief that a deep frame would winter bees better than the Langstroth; but when these frames were tested side by side, year in and year out, the Langstroth always seemed to hold its own. It is indeed remarkable that father Langstroth was so nearly right in so many things. While this winter may prove to be a severe one on bees, the size or shape of the frame will have nothing to do with it.—Ed.]

Pyrox fills the barrel with the apples that used to be on top. Write BOWKER INSECTICIDE CO., Boston, for book.

Heads of Grain from Different Fields

Artificial Pasturage for Bees; Plants that Can be Grown Profitably

What is the best known plant that can be raised for bee pasture? I am thinking of sowing one or two acres of mignonette. Do you think that bees will stop on that, and neglect gathering honey from basswood or white clover one-half to three miles distant?

Oakfield, Wis., Feb. 22.

F. W. WELLS.

[As a general rule we may say that it is not advisable to grow any plants for the honey alone. If, therefore, you wish to put out artificial pastures for the bees, grow some plant that will yield seed or hay in addition to the honey. For this purpose we know of nothing better than nor quite the equal of alsike clover that is now being grown so extensively all over the United States. Next in order we would place buckwheat, red clover, sweet clover, and (in the Western States) alfalfa. Basswood is, of course, one of the greatest honey plants or trees in the world; but it takes so many years before it begins to yield nectar and lumber that the one who puts it out must have an idea for future generations.]

Ordinary white clover is, of course, a splendid honey plant, and it yields a good forage for pasture. It is also being grown to a considerable extent. Red clover and peavine red clover yield considerable nectar; but the corolla tubes are so long that the average bee can not get very much honey from them. If, therefore, you desire to produce honey and hay you had better, by all means, grow alsike, sweet clover, or white clover, rather than either of the red clovers mentioned.

Sweet clover is one of the most valuable honey plants we know of, and, when cut early enough, it yields valuable hay for stock. In many sections of the country sweet clover is being put in to prepare the soil for other clovers; and on some waste lands where no other clover will thrive it will make fine pasturage for stock.

Mignonette is a wonderful honey plant, but that is about all that can be said of it. There is only a limited demand for the seed. There would not be enough of it grown to pull the bees off from clover, if it were within three miles.

Perhaps it would be well to explain that, in order to get any considerable amount of honey from artificial pasturage, we have to figure on anywhere from five to ten acres of pasturage to a colony of bees. In some cases, and particularly some seasons, a much less acreage would be necessary.—Ed.]

Beehunting Pays

In reply to P. C. Chadwick, p. 39, I beg to say that any one would certainly know better than to save a swarm of bees from a tree if they are affected with foul brood. Right here the same law should apply, and should impose a fine of \$5.00 and costs for cutting a tree infected with foul brood, and saving either bees or honey, and also for failure or neglect to destroy effectually the entire contents of such a tree by burning, so that other bees near it may have no chance to convey any of the honey therefrom, and thus spread the disease. As to whether beehunting pays in a financial way or not is wholly at the option of the operator. Would it pay to buy bees in the spring, and kill them in the fall to get their honey? Does it pay to cut down the apple tree to get the apples? Does it pay to cut the hickory tree to get the nuts? Does it pay to kill the sheep to get the wool? In fact, does it pay to kill the goose that lays the golden egg? All bosh! I have made no misstatement. It pays *me* to hunt bees, and under the same management it would pay Mr. Chadwick or any one else. I should like to live in a country where I could find nine beetrees while walking a distance of two miles. I would soon have the bees in hives, or destroyed if diseased.

Union Center, Wis.

ELIAS FOX.

Bees Poisoned by Careless Spraying at an Experiment Station

Some time ago I wrote you that my bees were killed as a result of our experiment station spraying apple trees while in bloom. They deny that

the apple bloom was in condition to poison the bees. It is true that the early apple bloom had fallen; but Rome Beauty was in full bloom, and the bees were working busily on the blossoms. My bees were very strong at that time. They died by the thousand, the ground near the hives and close to the alighting-board being covered with dead bees. There was a great increase in the number of dead bees at the time of spraying, as the colonies were then very strong.

The bees did not starve to death, for some of the hives contained 25 pounds of honey at the time the bees died. Others had more than that amount.

The bees that did not die at once lingered in a weak condition. Moths fixed many; and others went into winter quarters with enough old honey for wintering, but not enough bees to cluster and keep warm. I do not understand why the bees that were weakened by the poison did not build up strong during the season. Many died in a few weeks after the spraying.

Of 48 colonies but 12 are living. I think that three-fourths of all the bees in Pleasant Co. and in Wood Co. went the same route because of careless spraying.

Salama, W. Va.

MARTIN WILKINSON.

Queen-rearing in Florida or Texas

I am interested in the queen-rearing business, and would like to know of a place where I can rear early queens. How would the west coast of Florida or Southwestern Texas do for that business? Do you know of a better place than either of these? Can you suggest a definite location in either of the above or any other section of the country?

Bradford, Ky.

M. A. AULICK.

[The west coast of Florida would be a very good place to rear queens if you could get away from the water and rivers where there are mosquito hawks. One great difficulty in rearing queens in Florida is these hawks, and the large red ants that have nests in trees. The mosquito hawks will sometimes paralyze queen-rearing operations in a few days, while the red ants will destroy whole colonies. There is no remedy for the mosquito hawks except to get into a locality where they have never been known to come in droves. You would have to get well away from water. In doing that you would get into desert country, probably where there would be no flora for bees. The nuisance of red ants can be overcome to some extent by placing the hives on leveled-off ground where there is no vegetation nor rubbish. Hives must be put up on stilts or framework. Grass or rubbish of any sort must be kept entirely away from the apiary for a distance of 25 or 30 feet. Do not leave boards of any kind on the ground. The apiary should be in the open, away from any trees.]

Southwestern Texas might and probably would present better conditions for queen-rearing than any place in Florida.—Ed.]

Paper Protection Not Sufficient in Cold Climates

Mr. Miller's paper protection, p. 73, Feb. 1, may be sufficient to carry bees through winter in Rhode Island; but my experience here in Central Wisconsin has proved it to be a failure in severe winters. To satisfy myself as to the merits of the black paper as a winter protection, I prepared two colonies in the fall of 1910 by placing a super on top, filled with planer shavings; then the cover, and then over and around the hive and super, not common tarred paper, but a heavy tarred felt. One of the colonies so prepared was strong in bees, the other having a less quantity. The entrances were $\frac{3}{4}$ in. deep by 7 in. long. The result was as follows: The stronger colony pulled through in a weak condition with a heavy loss of bees. The other pulled through the cold weather; but before the first of April there was not a live bee in the hive. During the same winter I had 15 colonies in my cellar, a part of which were light, both in stores and bees; but all wintered well. During the past few seasons I have adopted the Alexander plan of wrapping my hives with felt on removing them from the cellar; and this with me has proved to be very valuable. While I do not wish in any way to criticize Mr. Miller, yet I feel that I ought to sound a warning to the inexperienced beekeeper not to attempt

to winter bees outdoors in a climate where the mercury goes down from 30 to 40° below zero unless they are packed in chaff or double-walled hives.

Elroy, Wis., Feb. 9.

CHAS. SHELDON.

Great Demand for Bees in Orchards

Notwithstanding the extremely cold weather, bees have wintered much better than I expected. I have lost only a few. I have some fine colonies in strong condition which wintered outdoors in ten-frame single-walled hives. There is a wonderful demand for bees for fertilizing orchards in this State, and I am sorry to say that bees are decreasing greatly. In consideration of the fact that the planting of orchards is going forward in remarkable leaps and bounds, the demand for bees will increase considerably.

Notwithstanding the loss of bees by the unusually severe winter, the remarkably poor honey seasons of the past two years, and the terrible encroachment of bee diseases in this State, I am very optimistic; and personally I am satisfied that with beekeeping, as with all other industries, the time to go into it is when all other people are going out. The future for this special branch in this State looks very good and promising to me.

H. A. SURFACE,

Economic Zoologist.

Harrisburg, Pa.

The Cover Picture for Feb. 15

I can't tell you how surprised I was this morning to find on the cover of GLEANINGS for Feb. 15th the picture of our beeyard at our old home in Evart, Mich. The photograph was taken by W. Z. Hutchinson while on a visit to us about sixteen years ago, and we still have the original copy. While I was recovering from my surprise at seeing the picture in a place where we had no reason to look for it, I was thrown into fresh wonder as to how your father's Florida ducks and drakes got into our old trout stream; but in these days of moving pictures I suppose we are not to be surprised at any thing.

The man in the picture is Mr. Walker, and the buildings shown were our barn and shed, the house not appearing. The stream was a beautiful creek called Twin Creek, and many were the beautiful speckled trout the boys from our neighborhood pulled out of it. The scene is just off the banks of the Muskegon River. If the picture looks half as good to your readers as to our family they are, no doubt, charmed with this specimen of Mr. Hutchinson's photographic skill.

Cleerco, Ill.

MRS. BYRON WALKER.

Honey Reports from California Not Misleading; a Crop of 38 Tons

I wish to enter a protest against what you say on page 35, Jan. 15, in regard to the honey reports from the West, when you make the statement that many of the reports were misleading, and that some producers were holding back the facts. The truth is, for Central California, that we did not expect a good crop early nor even in the middle of the season. I thought when you published Madary's report that it was about right. Here in the valley the bees commence to gather surplus from alfalfa about June 1. We begin to extract honey July 1, and get through Oct. 1. Last season we got the bulk of the honey during the last half of the season. Beekeepers tell me that this is true of the location west of us in the mountains. They have the sage first, then wild buckwheat, and last season we had a late heavy flow from blue curl.

I did not see any reports from Central California that looked misleading to me at the time they were published. Of course, when you say "the West," that is a big country, and you may have some excuse for talking so.

My crop was 38 tons. Early in the season I did not expect 24; but we are having a hard fight against both American and European foul brood.

Hanford, Cal.

P. H. BALES.

Recipe for Making Honey Vinegar

You say that anybody who can make cider vinegar can make honey vinegar. Nine out of ten, however, make the sweet vinegar sour, as nearly all use too much honey. In this case the microbes have died. I will here give a formula which will

make good vinegar. If the wash water from cappings is used, or dirty honey from trees, etc., a hydrometer must be used. This hydrometer must register 30 in the sweet water; and if clean honey is used in the proportion of 7 lbs. of honey to 5 gallons of water it should register 30. Here is the formula: Honey, 7 lbs.; water, 5 gallons; potassium bicarbonate, $\frac{1}{2}$ ounce; sodium phosphate, $\frac{1}{2}$ ounce; ammonium chloride, $\frac{1}{2}$ ounce; a piece of yeast the size of a pea. The chemicals are used for the purpose of causing fermentation.

After a few days this makes a fine drink like sweet cider. When it has ceased to ferment, strain and put into a clean keg and add one quart of vinegar and some mother.

Big Wells, Texas.

READER.

Bees and Grapes

Can you give me any information in regard to some productive plant to sow for my bees—something that, with favorable weather conditions, will be in full flow about the time grapes are ripe? I had thought of Japanese buckwheat. If you would advise me to sow that, when should I do so, and how? How much would be required to sow half an acre? Where can I obtain it? I wrote you last summer, saying my neighbor complained that the bees were destroying his grapes. My object is to sow something on my place that will be yielding about the time grapes are ripe, and see if that will help matters.

Kewanee, Ill.

E. R. WILKINSON.

[We do not know of any thing you could set out that would be in bloom about the time that grapes begin to ripen—or, rather, at the time when the bees are liable to be bothersome. If you will investigate the matter thoroughly you will find that bees do not spoil nor injure in any way the sound fruit. See what Professor Surface and other writers have to say in this issue. If you could hand your copy of this number to your neighbor we believe he will be convinced that the bees were simply sucking the juice from grapes that were already spoiled.—ED.]

The Larger Part of Alfalfa Cut Before it Blooms

I have been interested in the different theories given concerning alfalfa bloom not giving as much bloom as formerly, and the practical reason has been overlooked. By far the larger part of the crop is cut before it blooms. The sheep-feeders here, in the best alfalfa section of the Arkansas Valley (western part of Bent Co.) cut the first crop just as soon as it begins to bloom, and the three other crops before blooming. All that is left is a small portion for seed. It is like Wateley's reason for white sheep eating more than black—because there are more of them." So, conversely, the reason bees don't gather as much honey as formerly from alfalfa is, the alfalfa is cut before it blooms.

Of course, this sounds like treason to men with several hundred stands of bees to unload, and who use the real-estate-boomer slogan, "Be a booster and skin your sucker." I think men should be truthful in their statements concerning bee territory. Any one interested can come and see during July, August, and September, when hay is being cut. It will be seen that the first crop, cut in June, is the only one given any chance to bloom.

Las Animas, Col.

L. H. SWEETMAN.

The Gravenstein Apple

I can tell Mr. Root a little about the Gravenstein apple. I was born and raised close to the little village of Gravenstein. In the old garden belonging to the old-time castle stood the old apple tree from which all Gravenstein apple trees originated. It is surely the best apple that grows; but the tree is not hardy enough to grow in all climates and under all conditions. On the Pacific coast, in Washington and Oregon, is a climate like its native one, and there it grows to perfection.

Brush, Col.

DANIEL DANIELSON.

Bees Pleasant to Handle.

I am glad to say that the bees of this country are not like those described by Mrs. Henry A. Gooch, p. 766, Dec. 15, but are very pleasing creatures for a woman to work with.

ANNA SOMMER.

Ronne, Bornholm, Denmark, Jan. 11.

POULTRY DEPARTMENT

A. I. Root

CHICKEN THIEVES; WHAT SHALL WE DO TO
PROTECT OUR VALUABLE STOCK FROM
THEIR DEPREDACTIONS?

In our issue for Feb. 15, p. 106, I spoke of losing a duck and a drake. Well, about the middle of January two more were gone when the flock came home at night; and finally on Sunday evening when they got home my only remaining drake was gone. It was not so much the loss of the five ducks as it was the fact that I must stop letting my ducks run at large in the drainage canal that adjoins my five acres. After losing the two we went to considerable expense and trouble in making a fence in the rocky bottom of the stream so as to give them a place to swim in close to the shore; but as this prevented them largely from getting the moss and shellfish, the yield of eggs soon dropped off. Last, and by no means least, I was forced to conclude some one was taking lessons in theft—regular progressive lessons—and getting off “scot free” every time. Something *had* to be done. I hardly need tell you I prayed over the matter again and again. The outcome as to what was best to be done was the following, which I clip from the Bradentown *Weekly Journal*:

“THOU SHALT NOT STEAL.”

Ed. Journal:—I have repeatedly, both in print and by correspondence, extolled Bradentown and vicinity as remarkably free from petty thieving, and remarked that, after being north all summer, we invariably find every thing about our premises intact on our return. Well, I greatly regret to be obliged to report we have at least a few sinners as well as saints in our midst. Five choice breeding ducks (with excellent records) have been taken from our flock recently. All were taken in midday—the first, the day before Thanksgiving; the second, the day before New Year’s day; two more in January, and the last, a large choice drake, the only one I had left, was taken yesterday, February 11 (probably while we were at church and Sunday-school); and to get him the culprit broke through a fence of barbed wire and poultry netting, drove him into a corner, and evidently killed him with stones taken out of the brook they waded through to get to the fence. Although the loss of this drake just now blocks my work with the incubator, and is a great inconvenience to me, this is nothing compared to letting some one (possibly a boy or boys) go on unhindered in the school of crime. Does it not behoove every industrious, law-abiding citizen to call a halt at such work in open daylight, and mostly, if not all, on Sunday? Such work may call a halt in developing an industry that this region seems particularly adapted to. A. I. Root.

The second clipping from the same journal, a week later, gives the result, as you see:

AN INTERRUPTED PILLAU.

The parties who have been making raids on Mr. A. I. Root’s ducks, as published in last week’s *Journal*, have been captured, and the ringleader, a young white man about 18 or 20 years old, is now in jail. Sheriff Wyatt walked up on them last Sunday as they were gathered around a fire out in the woods cooking a Pillau. Out of regard for the parents of the boys we withhold names, but we hope these parents will not withhold the lash.

The arrest of the gang of five boys was owing to the kind service of Dr. Morgan, a near neighbor and a longtime subscriber to GLEANINGS. He had but two ducks, and

at first decided to pen them up while at church on Sunday, but afterward concluded to leave them out in the canal and stay at home from church and watch. About 10 A.M. the ducks were missing. He followed along up the stream, and on coming to a piece of woods he saw smoke arising. Further along he found the feathers, and then came upon five boys with a kettle, cooking their duck. Without alarming them he proceeded to the nearest house, and called up by telephone the sheriff. Now, here is something I want you all to make note of. When the oldest one, and evidently the ringleader, was arrested he had a *cigarette* in his mouth, and kept right on smoking it, proclaiming that *he* “just happened” along, and was in no wise connected with the other youngsters; but (if I am correct) he was the one who announced, when the sheriff proceeded to confiscate the kettle (duck and all), “Here! that is my kettle.”

Now, friends, would it be a very long jump, in “jumping at conclusions,” to say it was *cigarettes* that stole my five ducks?

In that excellent book I have just referred to, the Corning Egg Farm, there is a chapter that is headed, “Policing the farm with bloodhounds, searchlights, and rifles;” and the chapter starts out with these words: “In the fall of each year, from almost every part of the country, come reports of what seems to be organized thieving in the poultry line,” and then the author tells about what they are doing with bloodhounds, searchlights, and sharpshooters. I need hardly tell you that these cigarette saloon-frequenters would just as soon take your most valuable fowl for a roast in the woods as any other, for there are veritable *heathen* right here in our land of schools and churches. Let me advise, in closing, the need of a law-and-order club among poultrymen, with dogs and detectives, to punish such offenders until they have had enough of it. Let a fund of money be raised that will be ample to meet the expense of getting the culprits, swift and sure. Since this matter came up, my neighbors, right and left, tell of having had valuable fowls stolen. Let me here repeat a little story I told you some years ago. When I was witnessing the early experiments of the Wright Bros. I boarded with a farmer whose wife was on a decline with the great white plague. To prolong the life of the poor woman (and they were poor financially) the doctors advised poultry-keeping in order to have her in the open air as much as possible. She became quite enthusiastic, succeeded with the poultry, and was improving in health, when one morning as she went out to liberate her pets that she had labored so hard for, to get them up to broiler age, she found every chick gone, and just the still empty coops. The shock and disappointment were so great she went into a decline, and not

long after went down to her death. A neighbor, who had been having similar losses, got up in the night and attempted to stop some thieves who were just making off with a load of his chickens, and the thieves turned a gun on him and ordered him to go back. He aroused his neighbors, and they followed them until they were lost with their booty in the saloon haunts of the great city of Dayton, Ohio, with its hundreds of saloons running day and night. How long, O Lord, shall this devastating curse afflict and discourage our hard-working and law-abiding citizens?

A BALANCED RATION; LETTUCE FOR DUCKS;
MORE "DISCOVERIES," ETC.

Somebody said Prof. Holden had put corn on the witness stand, and made corn answer his questions. Well, I have been putting ducks and chickens on the witness stand, and I am going to tell you what answers they have given me. By the way, what a *big lot* of valuable "discoveries" I am making lately! Just think of it! yesterday I got 79 eggs from only 75 laying hens. Mrs. Root declares, however, that I should explain to you all that I gathered the eggs so late the day before that several laid after they were gathered; and this reminds me that our hens have got on such a craze to lay lately that they commence, some of them, at sunrise, and some of them are on the nests laying at sunset. How did I succeed in getting up such a "laying contest"? That is just the wonderful discovery I am going to explain to you.

When I was down on the island several years ago I told you about my flock of chickens that were all the time teasing for something and were never satisfied until I discovered they were hungry for animal food; and when I gave them a good "square meal" of fresh fish they all went and sat down in a row on a log, happy, contented, and *satisfied*. That was a lesson I have not forgotten, and I try to feed my ducks and chicks so that they will "go off and sit down," quiet and happy. Whenever they fail to do this, especially young growing stock, you may be sure they are *lacking* something. When my first brood of ducks from the incubator were about a month old they were always teasing uproariously for something. Their first feed was bread and milk, and I supposed they were begging for their milk ration that had been dropped, because milk costs so much down here. The only feed they would eat was a mash of bran and middlings; but they wanted it all the time, and I soon noticed their droppings looked very much as if the coarse bran was imperfectly digested, and began to wonder if the fine Florida sand I had been depending on for grit, was sufficient. I gave them some of the mica crystal grit that we always keep before the chickens, and there was an improvement. Seeing oyster shells advised by one of the poultry journals, for *ducks*, I tried them; and every pen of ducks, from the oldest to the youngest, took to them

greedily. One pen of four-weeks-old ducks ate such a quantity I feared to let them have *all* they wanted; but not until our neighbor Rood began shipping lettuce did we discover the "long-felt want." They at once dropped their grain and every thing else for the coveted lettuce, when they fairly got a taste of it. Well, my *discovery* that we have been so long getting at is this: Lettuce is not only *good* for ducks, but it takes the place, largely, of the expensive grains, shorts, and middlings. Just as soon as they had lettuce, all they could consume (and it takes about a wheelbarrowful a day for twenty six-weeks-old ducks) the amount of grain needed dropped off amazingly, and the whole lot of ducks would go off and sit in a row, and stay there for hours—a thing they had hardly done before since the day they were hatched. Of course, I knew ducks as well as chickens need green food as well as meat and grain; but as each of the three pens had quite a range, with Bermuda grass and other green stuff, it did not occur to me they were suffering for so large a quantity. They kept teasing for their mash, no matter how often I fed them, but they did not seem satisfied; but now they are growing at a rate that surprises everybody who passes along the highway. Have you not heard of babies that kept crying for something they scarcely seemed to know what it was themselves? Well, is it not possible that, like the ducks, something was lacking in order to let the little darlings make flesh and blood and bones, as nature intended? It may not pay to grow lettuce for ducks and chickens alone—that is, when they are full grown; but it certainly will pay, and pay well, to give small ducks and chicks all they can consume; and down here, where lettuce is grown by the acre, there is always more or less unfit to ship; and during this past very wet season there has been an unusual amount that is just the thing for fowls, but too far in maturity to think of sending to the Northern markets, so you see this is just the place for the "duck man." The large quantity of nice head lettuce given the laying hens is probably what has caused the "laying contest."^{*} For a whole week, ending March 1, 75 hens have averaged about 60 eggs a day, but the price is down now to 20 cts. a dozen here.

The Russian government and the zemstvo organizations of that country are paying great attention to the development of beekeeping. Schools of apiculture are maintained, and staffs of apicultural instructors are sent to various points as needed. Peasants beginning beekeeping are given one or two proper hives free. In some cases hives are sold at low prices on the installment plan. Apiculture is a favorite occupation of small landowners and the working classes. —*Florida Times Union*.

*Just recently I have also given them a 10-cent box of ground mustard, a teaspoonful daily, in their daily mash.

DISCRIMINATING AGAINST OUR OWN PEOPLE

I clip the following from the *Ohio Farmer* for March 2:

WANTED—A REAL PARCELS POST

As you know, reader, from previous articles that have appeared in *The Ohio Farmer*, in carrying packages by mail, our government actually discriminates against its own people, in favor of other nations. Our postoffice department at Washington has "conventions," or agreements, with 29 other nations, by which it carries packages weighing up to 11 pounds from any postoffice in this country to any postoffice in those countries, for 12 cents per pound. For 12 cents per pound you can mail from your postoffice packages weighing up to 11 pounds, to London, Berlin, Vienna, Stockholm, Rio Janeiro, Valparaiso, Jerusalem, Melbourne, Tokio, Peking, Mukden, and to more than 10,000 other foreign postoffices scattered over the globe. But a package mailed to the next town, in the United States, must not exceed 4 pounds in weight, and the carrying charge is 16 cents for each pound.

And as though those discriminations were not enough, our postmaster-general has made arrangement with British postoffice authorities recently, whereby mail packages up to 11 pounds are carried from any postoffice in England, Scotland, Ireland, or Wales, to any postoffice in the United States, for the following charge: Up to 3 lbs., 30 cents; up to 7 lbs., 55 cents; up to 11 lbs., 79 cents. By this agreement a British subject can send 11 pounds in one package from his postoffice to your postoffice for 79 cents; while you wishing to mail matter weighing 11 pounds to your nearest postoffice in this country, must break it up into three packages of not over 4 pounds each, and pay \$1.76 postage—a discrimination of 100 per cent against you.

As allowed by law, the postmaster-general is steadily extending these special postal privileges to foreign nations. This is right, and best for all concerned. On the other hand, the only change congress has made in carrying parcels for our own people, during the last fifty years, was in 1875 when it raised the postage on parcels from 8 to 16 cents per pound—double the cost.

Well, after you have read the above twice over (or *more*) read this, from another part of the same issue.

EXPRESS CO. INVESTIGATION

The Interstate Commerce Commission has found in its investigation of the express companies that they have made charges above their published rates, and now hold in their treasuries \$81,957,893, a large proportion of which is excessive charges wrongfully obtained. Criminal proceedings have been ordered and an indictment has been returned against the Adams Co. The following are the companies and the amount in each treasury: American, \$39,635,603; Adams, \$24,133,486; United States, \$10,737,518; Wells-Fargo, \$7,936,377; Southern, \$3,902,853; Northern, \$999,551; Globe, \$386,856; Western, \$82,787; National, \$2350.

Where is the man or woman who has not contributed (under protest), more or less, to this fund of over *eighty millions*? And how long is our postal department going to continue to carry and deliver stuff for foreign nations at a lower price than she does to our own people? What is the matter of *us*? How about "By the people, for the people, and of the people"?

PUTNAM CO., FLA., AND ITS ARTESIAN WELLS.

GLEANINGS IN BEE CULTURE says that in Putnam County, Florida, "they do not have artesian wells," italicizing the "not." Has friend Root, who says that he owns land in that county, never observed the six-inch pipe at the back of the Putnam House, in Palatka, conveying the water from a flowing well at its base to the third story? The pressure on that pipe is so great that the writer remembers one day when the pipe gave way and all the gutters of the little city ran deep in sulphur water for days, blackening all the white-lead paint on the houses and the silver doorplates as well.

That is only one of the numerous wells, some flowing, in Putnam County.—*Jacksonville Times Union*.

We cheerfully give place to the above and humbly beg pardon for not being better posted. I had in mind, when making the statement, that there was no artesian well in the locality around and about Huntington, where my property is located. If I am mistaken in this I should be *very glad* to be corrected.

A. I. R.

Kind Words from Our Customers.

MILES APART ON EARTH, BUT CLOSE NEIGHBORS IN HEAVEN.

Dear Friend and Brother in Christ Jesus:—We are a good many miles apart here on earth; but when I read your writings in the Home department it is an inspiration. It seems to set the "joy bells" ringing, and makes us close neighbors in heaven. May the Lord bless you, and give you health and strength for years to come to help convert this country to Jesus. The old saloon serpent is dying a mighty hard death in Oklahoma, but the temperance people are on top, praise the Lord. Law and order, and love for God and home predominate in Oklahoma.

Perkins, Okla., July 28.

Z. S. HOSSELTON.

HOW GLEANINGS IN ITS MISSION ALL OVER THE WORLD HELPS PEOPLE.

In reading GLEANINGS for three years I noticed you had an agent in Dunedin, New Zealand. I had a sister who went to New Zealand in an early day, and her address I did not know and she did not know mine. The thought struck me if I could get an advertisement in some prominent paper in the island I might find her. So I asked the Box Co. in Dunedin to put in an advertisement I sent to them, and I would stand all expense. So in time I got a copy of the Otago *Daily Times*, with my advertisement in it, and a letter from my sister, one from her son, and one from the Alliance Box Co., telling me what they had done for me, and how much they were out of pocket, and said if I would hand it to you folks it would be all the same to them.

Pipestone, Minn.

FRASER MACKAY.

FOLKS WHO LIVE IN "GLASS HOUSES."

Fie on you, Bro. Root, after your scolding screed of a short time ago, on the carelessness of us poor chicken "journalists," to allow The A. I. Root Company (p. 8) to print the Almighty with a small g! (p. 94, Feb. 1). What will the Lord think of it? and from GLEANINGS!

Henville.

I. KETCHUM.

[Friend K., I "own up" and thank you for your very kind reproof. I want to say, however, that there is no difficulty in understanding what our good friend wanted to say, even if he did use a small G, whereas if a line is misplaced or omitted entirely it makes the whole sentence unintelligible. Our old and faithful proofreader, "W. P.," writes me he marked the above for correction; but our people, being behind hand, and rushed with the February issue, it got off without the correction being made. If the A. I. R. Co. lets this thing go on they will have to "take their medicine" like all the rest of us poor blundering mortals].

Convention Notices.

The North Texas Beekeepers' Association will hold its 31st meeting at Greenville, Texas, on the first Wednesday and Thursday in April, 1912. All beekeepers are cordially invited to attend. We are expecting to have a great meeting.

Greenville, Texas.

W. H. WHITE, Sec.

The annual meeting of the Connecticut Beekeepers' Association will be held Saturday, April 13, 1912, at Y. M. C. A. building. Good speaking. The matter of forming a branch of the National Association will be considered.

Hartford.

JAMES A. SMITH, Sec.

Gleanings in Bee Culture

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Editorial

CHEAP HONEY FOR MANUFACTURING PURPOSES.

AN intimation has come to us that the bakers have discovered a new recipe by which they can use a cheaper substitute for extracted honey in their manufactured products. Honey gives, as is well known, in cooking, a lasting quality to the cakes, because it makes them keep almost indefinitely. Hitherto, it is said, no artificial substitute has been found to take its place; but we can not believe that there is any thing that can be made by man that will take the place of honey. Some of the bakers, perhaps, may put up a bluff that they have discovered something better and cheaper than honey for the purpose of getting honey for less money. We await results.

DR. WILEY RESIGNS.

It is with much regret that we note that Dr. Wiley has resigned from his position as Chief of the Bureau of Chemistry—a position that he has filled so faithfully for 29 years. According to the newspaper account, the action was entirely voluntary on his part. He was completely exonerated from all guilt in connection with the charges that were brought against him; but he felt that his sphere of usefulness was limited, since the same parties might accuse him unjustly again, and so hamper him that he would be unable to give his undivided attention to his work.

We understand that he does not intend to withdraw entirely from this kind of work; in fact, we believe he expects to do more of it than ever before, except that he will be established with an office in Washington, but not in the employ of the government. We certainly wish him success, for it is to the interest of the American people that he succeed.

We believe the United States Government has lost one of its most efficient workers—one who believed in going ahead when he thought he was right, even though the stand he took might bring trouble to himself. Would that there were more fearless officials.

MUCH INTEREST IN OUR AUTOMOBILE NUMBER.

WE have almost enough material on hand to get out another special number on automobiles if we chose to do so. Some very fine illustrations (over a dozen of them from as many different beekeepers), came in too late. There is, apparently, far more interest shown in the subject than we had anticipated. But when we stop to think about it, it is not at all strange; for there is no class of producers to whom the motor vehicle is more an absolute necessity than beekeepers.

Possibly another year it would be well for us to issue another special number on this subject; but at present we have such a wealth of good material along other lines for special numbers to come, as well as for our regular numbers, that we feel that we can not devote very much more space to this question, interesting as it is.

ANOTHER SWEET-CLOVER PAMPHLET.

THE Bokhara Seed Company, Falmouth, Ky., has just issued a sweet-clover pamphlet, entitled "Sweet Clover and How to Grow It," by E. E. Barton, a member of the American Breeders' Association. A description of the plant is given, including the white sweet clover, the biennial yellow sweet clover, and several other varieties less common. This description is given in such plain simple language that anybody can understand it. For instance, the nature of the plant is explained in that, with red clover, alfalfa, beans, peas, and numerous other kindred species, it belongs to the family of plants called legumes; "a group whose importance to agriculture is beginning to be recognized the world over, and which furnishes in a large measure the food supply of both man and beast, as well as constituting the main stay of the soil's fertility."

The uses of sweet clover are mentioned, and the great value it has in supplying the two things most needed by the greater number of farms—nitrogen and humus. Its value for pasturing and for hay is also brought out. "While alfalfa hay is rather active on the kidneys and bowels of horses, sweet clover has a slight corrective influence

in that regard; and for this reason it is desirable to mix sweet clover with alfalfa meadows, resulting in a more satisfactory hay, as well as assisting the inoculation of the soil where alfalfa is getting a start. On account of the frequent mowings of the alfalfa, the sweet clover will not be able to reseed, and will disappear from the alfalfa at the end of the second year."

The value of this plant for honey was not overlooked, and the different varieties were compared as to their value to beekeepers. Then follow full particulars in regard to the seed and methods of sowing; the best time of year for sowing, the amount of seed, the nurse crop, etc.

All this goes to show that farmers everywhere are waking up to the value of this once despised *weed*, and are calling for the seed to such an extent that the seed companies are getting out these special pamphlets. For further particulars regarding the special pamphlet mentioned above, address The Bokhara Seed Company, Falmouth, Ky.

HOW THE BEES HAVE WINTERED.

As in former years, we find it difficult to give a comprehensive report of the prospects of the season; for, although we have hundreds of reports, there are not enough in any one State to give conclusive evidence. On account of the influence of local conditions, these reports from localities, often only a few miles apart, are more or less conflicting. It is still too early for any thing definite from Canada. We will take up the States that we have heard from, one by one.

CALIFORNIA.

The early reports were any thing but hopeful. During the fore part of March there were good rains; but while most of the beekeepers feel somewhat better over the outlook it is doubtful whether a bumper crop will be produced in any part of the State, owing to the rains having come so late.

CONNECTICUT.

Few reports. Very few days when bees could fly, but apparently most colonies have come through in very good condition.

FLORIDA.

There is every indication now that there will be a fine crop of honey throughout Florida. While the winter was a little backward, the cold did no damage, and the copious rains have put every thing on the boom. In the vicinity of Bradenton, the orange blossoms opened up March 18.

GEORGIA.

The outlook has changed but very little from that given in our last issue.

ILLINOIS.

Reports are rather unfavorable. Colonies in cellars appear to be all right; but those wintered out of doors have suffered losses all the way up to 75 per cent. One apiary of 58 colonies, all dead.

INDIANA.

Most colonies, wintered outside without protection, dead. Colonies in cellars and those well protected, and in good shape in the fall, are all right. Losses average about the same as in Illinois.

IOWA.

Heavy loss in most parts of the State, ranging from 40 to 60 per cent, and, in some instances, worse yet. Considerable honey dew gathered last fall.

KANSAS.

Loss of colonies in single-walled hives close to 25 per cent.

KENTUCKY.

Few reports. Loss of colonies in single-walled hives, possibly 50 per cent.

MAINE.

The few reports are all favorable.

MARYLAND AND MASSACHUSETTS.

Losses apparently not severe.

MICHIGAN.

Reports quite favorable, with the exception of one loss of 39 per cent. In another apiary, all colonies in fairly good shape with the exception of the golden Italians, which are nearly all dead.

MINNESOTA.

Half of the reports show favorable wintering, the others indicating a loss approaching seventy-five per cent.

MISSISSIPPI.

Excellent prospects for good crop.

MISSOURI.

Colonies in good shape in fall, all right. Those without protection wintered very poorly.

MONTANA.

The few reports received are very favorable.

NEBRASKA.

Heaviest loss in years.

NEW HAMPSHIRE.

Losses very light, as a rule.

NEW YORK.

Large number of reports show that losses are apparently light. Colonies in cellars in good shape.

OHIO.

Many reports, most of which are favorable. In one or two localities loss approaches 60 per cent.

OKLAHOMA.

Few reports. Loss possibly 33 per cent.

PENNSYLVANIA.

About half of the reports indicate serious loss. Causes—starvation, insufficient packing, long-continued cold, etc.

RHODE ISLAND.

Few reports. No serious losses as yet.

SOUTH DAKOTA.

Few reports. Outdoors, 30 to 75 per cent loss. Cellar, 10 to 25 per cent.

TENNESSEE.

In some parts, owing to poor quality of stores and no packing, loss is quite heavy. Other reports more favorable.

TEXAS.

Good season expected.

VERMONT.

Few reports indicate close to 50 per cent loss.

VIRGINIA.

Few reports. No serious losses.

WASHINGTON.

Apparently little loss.

WEST VIRGINIA.

Most reports indicate a loss of about one-third.

WISCONSIN.

All reports agree on quite heavy loss out of doors; and, in some instances, in cellars also.

In looking over these reports, the reader must remember that much depends upon the weather from this time on. Just now (March 25) there is nearly ten inches of snow on the ground in this locality, the result of a March blizzard. If the weather turns very warm suddenly, and then gets colder again after a couple of weeks, the brood that will have been started may chill. In two weeks the conditions may have taken a decided turn one way or another.

Look out for spring dwindling. This spring we expect to hear of an unusual amount of trouble from this source for the weak colonies will not stand very much.

THE VALUE OF HONEY BECOMING BETTER KNOWN.

THERE have been so many sensational stories published in the press regarding bees and honey that have been misleading and untruthful that it is quite refreshing to find occasionally an item that is true as well as interesting. The following, from *The Christian Herald*, indicates that the original writer knew what he was talking about, in this instance at least:

HONEY BREAD.

In Europe, where the food value of honey seems to be much better understood than in the United States, enormous quantities are used. Of late years we seem to be waking to a realization of the value of honey as a wholesome and delicious article of food, and also as to its preservative qualities. Cakes and sweetbreads made with sugar soon become dry and crumbly, and to get the good of them must be eaten when fresh; but when made up with honey they seem to retain their freshness indefinitely. In France honey bread a year or eighteen months old is preferred to that just made. They say, "It has ripened." It is the preservative, or, rather, the unchanging quality of honey that makes it so popular with the best confectioners.

As pointed out in the introduction to our new booklet, "The Use of Honey in Cooking," cakes and cookies made with honey retain their moisture and freshness almost indefinitely—a fact which is not appreciated by the general public. It is a question, however, whether the average housewife, on reading this clipping, would put very much faith in it, since she has been fooled so often. At the same time, we are glad to see items appearing in which honey is given its just dues. Let the good work go on.

WHAT MAKE OF AUTOMOBILE TO BUY.

THE various articles in this special number show conclusively, we think, that automobiles are cheaper than horses when the saving of time is taken into consideration. In fact, each user of a machine is so enthusiastic and so sure that his own is the best make to buy that a prospective customer is likely to be confused and unable to decide which way to turn. For the benefit of such we may say that there is no longer any great risk in buying a machine made by a well-established firm that has been in the business long enough to know what is required of a motor vehicle in the hands of an experienced driver and running on all kinds of roads. There is quite an advantage, however, in purchasing from a local dealer if possible, for he will not only see that his customer is taught to run the car but will take an interest, in most cases at least, in seeing that it is satisfactory in every respect. Many dealers handle more than one car, and usually the various makes they sell are quite different. It may be well, therefore, to consider briefly some of the different types; for after all a great deal depends on personal preference. A car that would exactly suit one person might not be satisfactory to the next one, even though the work required were the same.

AIR-COOLED VERSUS WATER-COOLED CYLINDERS.

Some gasoline-engines are air-cooled and others are water-cooled, and we are asked repeatedly which method of cooling is the better. For small cylinders, air-cooling is quite satisfactory. There is no radiator to leak, and no pump to get out of order. On the other hand, the air-cooled automobile engine is not as quiet as the water-cooled, and it requires a somewhat greater quantity and better quality of lubricating oil. If of the four-cycle type, the exhaust valves are also a little more likely to warp with the heat, and give trouble about leaking, than if the cylinders and valve chambers are cooled by a water-jacket. And there is not as much trouble from leaks in water-cooling systems as there used to be, for the manufacturers have abandoned the use of steel in the radiators, pipes, and tanks; and the rubber hose, if used at all, is of good quality, so that it is strong and durable. It is true that air-cooled cylinders will never freeze in cold weather; but there is now no excuse for allowing water-cooled cylinders to freeze, for it is very easy to make an anti-freeze solution with either wood alcohol or glycerine mixed with water.

TWO-CYCLE VS. FOUR-CYCLE AUTOMOBILE ENGINES.

There has been a vast amount of discussion between automobile designers regarding the two-cycle engine—that is, one in which there are two strokes of the piston in the complete cycle, as against the one in which there are four strokes in the complete cycle like the average automobile engine. The four-cycle engine has an inlet and exhaust valve for each cylinder. The operation is something like this: The gasoline vapor is fired by the electric spark, and the force of this charge drives the piston down or away from the cylinder head, and the momentum of the flywheel carries it back again, when the exhaust valve opens and the burnt gases escape. As the piston starts down again, still carried by the momentum of the flywheel, the inlet valve opens, and a fresh charge of gas is drawn into the cylinder. When the piston returns, this charge is compressed, ready to be fired once more, thus completing the cycle. Thus, there are four strokes of the piston in the complete cycle. In the two-cycle engine the piston acts as its own valve, allowing the burnt gases to escape through a port in the cylinder, which is uncovered when the piston reaches nearly the limit of its stroke; and when it moves back again toward the cylinder head a fresh charge which was drawn in is being compressed ready to be fired, so that there are only two strokes of the piston completing the cycle.

Four-cycle engines are much more complicated, but they are more efficient; that is, they will develop a certain horse-power on a smaller amount of gasoline than would be used by a two-cycle engine of the same horse-power. For this reason, perhaps, and

also because the average four-cycle engine is somewhat more easily controlled, and steadier in running, a very large proportion of the manufacturers use this type.

Among the advantages that may be mentioned of the two-cycle engine are the simplicity, the ease of lubrication (for the oil may be mixed with the gasoline), and the fact that the two-cycle engine of a given horse-power is lighter than a four-cycle engine developing the same power. In the past, quite a number of cars having two-cycle engines that were poorly designed turned out to be failures, and this has caused considerable prejudice against this type of engine, which is not well founded, in view of the fact that there are some manufacturers who for years have built good reliable automobiles in which this engine is used.

THE TRANSMISSION QUESTION.

The weakest point in most cars is the transmission, which changes the ratio of drive between the engine and the wheels. It would be impossible to go into even a brief discussion of the merits of the different types of transmission used; but we will say that all forms of transmission have their faults and their limitations. For instance, the planetary transmission which is simple to operate is limited to two speeds forward only. It is difficult to learn to operate properly the sliding-gear transmission that is used on the majority of cars manufactured, and the gears are short-lived unless equipped with the very best bearings. The friction transmission which is the easiest to operate of all is expensive to build, and slightly less efficient than either of the other two drives; and this loss, though so small that it can not be detected in the running of the car nor in the amount of gasoline used, has caused considerable prejudice. This point is more fully discussed elsewhere in this issue.

SOLID VS. PNEUMATIC TIRES.

We are asked quite often as to the merits of solid tires as compared with pneumatic ones. The solid tires are perfectly satisfactory for motor trucks, wagons, etc., where the speed is not over fifteen miles per hour. They are lower in first cost, the expense of upkeep is less, and they never give serious trouble on the road. Pneumatic tires, however, are much to be preferred for pleasure cars, as they ride easier, and they are much easier on the mechanism of the car, since the machinery is subject to much less vibration when they are used.

THREE RELIABLE TRUCKS.

After the foregoing, it may seem like an impossibility to recommend any special car; but owing to the fact that so many have asked for advice, we desire to mention here three trucks—the Reo, the International Harvester, and the Chase. These are built especially for business, and we can give them our unqualified endorsement. The designs of these three machines are quite different from each other; but we have no hesitancy in recommending any one of them.

There are undoubtedly other motor wagons or trucks that are perfectly satisfactory; but these particular machines are to be seen in service every day on the streets of most of our larger cities as well as on country roads, saving time for busy farmers, and we believe them to be particularly adapted for beekeepers.

We have had personal experience with the Reo. For instance, the one shown in our cover picture of this issue was purchased in 1906. For four years it was used as a pleasure car, being fitted with a folding rear seat. The last two years it has been used as a general truck, the body shown being built here. It would be impossible to say how many miles this machine has traveled, but 15,000 would not be far out of the way. The original price was only \$650, so it can be seen that the investment for this distance traveled has not been great. The repairs have been rather below normal if any thing; and, although the machine needs a general overhauling now, it is still capable of considerably more hard work. The 1912 model truck is shown on page 196.

The International auto wagon made by the International Harvester Company of America, Chicago, Ill., is used by the thousands by farmers and business men of all classes. It is equipped with a 20 h. p. two-cylinder opposed, air-cooled engine, which has had to be altered very little in design during the past few years, showing that it has proved very satisfactory in the hands of the users. The high wheels and solid tires make it possible to drive in mud or sand. In this connection, notice what Mr. Polhemus has to say, pages 204-206.

The Chase motor truck is sold in perhaps larger quantities for commercial purposes than any other one make. Mr. Peterson's report of his success with this truck on page 200 is not an unqualified endorsement, but it must be remembered that the one which he has is a very old model. Those turned out by the Chase Motor Truck Company, Syracuse, N. Y., at the present time are being bought in large numbers by such large corporations as the Bell Telephone Company, etc. This car has one of the simplest engines that we have ever seen. For instance, 167 parts found in the ordinary four-cylinder, four-cycle, water-cooled engine are eliminated in this three-cylinder, two-cycle, air-cooled motor, and it is a motor that "delivers the goods" too.

Occasionally, bargains may be picked up in second-hand cars; but as a rule they prove to be a big expense for a year or two; and then have to be sold for almost nothing. Then there is always the danger that the former owner, through abuse, may have weakened some vital part, such as the steering knuckles, or axles, which may give out at any time without warning. The owner who drives the machine himself knows just how he has driven it, and, therefore, knows what to expect. As a rule, we believe that new cars prove to be more satisfactory in the end.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, that paragraph of yours, p. 153, about the beauty of flowers, thrilled me. Shake, old fellow, shake!

OF ALL the appropriate things said about Prof. Cook in last GLEANINGS, none is more appropriate than the one which calls him *lovable*.

MISS MATHILDE CANDLER had much experience with carbolic cloths as super-clearers before the advent of the Porter escape. They do the work quickly and efficiently, but sometimes kill brood. Have our British friends ever observed this?—*American Bee Journal*, 73.

A. C. MILLER thinks bees leave supers for brood-nest cold nights to warm their feet; J. E. Crane thinks it's to warm the brood. If I may risk butting in, I think both are right. The Creator sends them down to warm the brood and they think they're doing it to warm their toes.

GEO. M. STEELE wants me to retract that statement, p. 126, "We do not believe there are a dozen colonies showing *all* five banders in all the United States." He thinks he can produce the goods. But, friend Steele, I didn't say that. It was the editor. Go for him. I have troubles of my own.

MR. EDITOR, I see you have "honeybee," p. 154. The dictionary says "honey-bee." But the dictionary has only been waiting for you to make the lead, and will be glad to make the change. Two words used as one word should be joined by a hyphen; then when the word has passed its novitiate the hyphen should be thrown away, leaving the word all in one. A number of bee-terms should be thus shortened, as topbar, queen-cell, beekeeper, etc.

AFTER ALL, the frantic efforts to clear the four murderers, mentioned on page 119, only succeeded in postponing the hanging a few days. They were hanged Feb. 16. Whether death or imprisonment be the punishment for murder in any given State, the great thing needed is promptness, both in conviction and execution of sentence. While I believe in capital punishment, I believe a man would hesitate more about committing murder if he were sure he would be securely imprisoned for life within a month of the murder, with no chance of a subsequent pardon, than he would if death were the penalty with nine chances in ten that he would get off scot free.

A STUDY of those census figures, page 68, brings some surprises. One would hardly guess that West Virginia would head the list as the State having most bees to the square mile rather than one of those we call great honey States, such as Texas and California. As a matter of fact these come 24th and 26th on the list. Let us place the bees of each

State in apiaries of 100 colonies each, and then distribute them evenly over the State. Then make a list, giving each State its number in the list, and the number of miles apart its 100-colony apiaries will be. Here are some of those at each end of the list:

1. West Virginia, 4.7; 2. Kentucky, 5.1; 3. North Carolina, 5.2; 4. Tennessee, 5.3; 5. New York, 5.6; 6. Delaware, 5.7; 7. Missouri, 5.8; 46. Nebraska, 36.5; 47. Wyoming, 46.2; 48. Montana, 48.0; 49. North Dakota, 119.6.

Doesn't look as if North Dakota beekeepers would be very sociable at a distance of nearly 120 miles apart, does it?

Take it another way. In these same States establish apiaries $3\frac{1}{2}$ miles apart all over the State, and then divide the bees of the State equally among these apiaries. Here's the number of colonies that will be in each apiary of each State:

West Virginia, 44.66; Kentucky, 37.87; North Carolina, 36.17; Tennessee, 34.36; New York, 31.80; Delaware, 31.27; Missouri, 29.28; Nebraska, .76; Wyoming, .47; Montana, .43; North Dakota, .07.

Pity those statistics are not full and entirely reliable.

BROTHER DOOLITTLE has made a good job of showing up the importance of having many bees rather than many colonies, page 102. No one who has given the matter much thought will dispute that it takes a larger *proportion* of the bees of a weak colony to stay at home and keep the brood warm than of a strong colony. I feel a good bit like going a step further and saying that at least in some cases the absolute number required to stay at home in the strong colony is less than in the weak. Take a colony of 20,000 bees, and there may be a day warm enough to work on the flowers, but so cool that 10,000 of those 20,000 bees must stay at home or the brood will be chilled. Close by it is a colony of 80,000 bees, with brood in proportion. On that same day only 5000 bees will be needed to stay home for the purpose of keeping the brood warm. (Just now we're not considering at all the number required to stay home to feed the youngsters.) Please bear in mind that sealed brood is a producer of heat, and when a big lot of it is massed together very few mature bees are needed to keep the brood warm enough. Put it another way. Fill a hive with combs entirely filled with sealed brood, but not a bee in the hive outside the cells. Let the weather be warm enough so that none of that brood will chill, but cool enough so that, if it were any cooler, the brood would chill. Now in another hive at the same time let there be a single frame of sealed brood, and that frame will certainly be chilled. It's hard to hammer too much on the importance of having colonies *strong*.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

In an apiary of 105 colonies, half of which are being wintered in double-story eight and ten frame hives, and half in single-story eight and ten frame hives, four colonies up to date, February 15, have died. These four colonies were all in single-story hives.



SPRING MEETING OF THE COLORADO STATE BEEKEEPERS' ASSOCIATION.

With the idea of uniting the interests of beekeepers on the western slope and Eastern Colorado, a spring meeting will be held in Montrose, probably early in May. The date will be announced a little later. The Montrose County Beekeepers' Association is to be our host, and they have promised us a good time. There will be a picnic and various other entertaining features. Every beekeeper on the eastern side of the Rockies should make it a point to attend this meeting. There will be special rates on the railroads, and this will be an excellent time to see the western-slope country. Montrose County is as good a section of Colorado as one will find in riding over a good many hundred miles of Colorado rails. The county is young yet, and has hardly begun to grow.

The orchards are mostly on the mesas, which rise a hundred feet or more above the valley. The freezes are said to slide down hill; but they so often come in the night that they can not find the edge of the mesa, and so camp out in the orchards unless the ever watchful orchardist smokes them out, when they slip downhill and nip the alfalfa bloom of the diversified farmer in the valley. The farmer who is content to raise alfalfa, wheat, onions, and spuds, and does not go in for the \$500 per acre (?) profits in orcharding, is supposed to have lost caste in this country; but upon inquiry I found that the reason for their losing caste is principally because these diversified farmers are holding most of the mortgages on the fruit ranches, and also sitting in the bank directors' chairs! Montrose County is worth seeing. I can't tell it all. Go yourself and see where weeds grow like trees, and the pumpkin-patch is used by small boys to play hide and seek in. Why, I saw a pumpkin that weighed 147 lbs., and it wasn't fed milk either. It just had all the Gunnison water and black soil and Colorado sunshine it wanted.



PARCELS POST NOW AN ISSUE.

In taking up this question of parcels post, there are two things that should be thoroughly understood: First, every express company is operating in violation of the law. Second, the law has been violated so long that nearly everybody has forgotten about it. Here is a part of it: "And declares it to be unlawful for any person or persons to establish any private express or expresses for the conveyance, or in any man-

ner cause to be conveyed, or to provide for the conveyance or transportation by regular trips, or at stated periods or intervals, from one city, town, or other place, to any other city, town, or other places in the United States between and from and to which cities, towns, and other places the United States mail is regularly transported under the authority of the Postoffice Department, of any letter or *packages*, or packages of letters, or other properly transmittable matter in the United States mail, except newspapers, pamphlets, magazines, and periodicals. A penalty of \$150 is inflicted by the act for its violation."

The parcels-post limit now is four pounds, and the rate 16 cents a pound; but the rate for beans, peas, seeds, etc., for planting is 8 cents a pound. If for human consumption, the charge is 16 cents a pound; the charge is twice as much if the beans are to be eaten as if they are to be planted. Talk about the high cost of living!

Now, suppose the express companies receive an 11-pound package from Great Britain's parcels post. They will deliver it anywhere in the United States for 24 cents; while if we want to send it by post our Postoffice Department charges us 16 cents a pound, and we have to divide it up into four-pound packages.

The postoffice in Boulder will charge me 64 cents on a four-pound package to New York; but if I send it to Berlin (through New York), the charge is only 48 cents.

There is no limit to the size of package carried by parcels post in Switzerland, and the rate is one cent a pound. In Belgium the limit is 132 pounds, and the rate about 1½ cents a pound. Germany will carry by post up to 110 lbs. at a rate of about 1¼ cents a pound. Austria will do the same. France will carry up to 22 lbs. at 1½ cents a pound. But we here in the United States have to pay 16 cents a pound, and can send but 4 lbs. Mexico, which owns 51 per cent of the express companies' stock, will carry parcels at half the rates charged here.

The average rural-delivery carrier's load is 25 lbs. It should be nearly a thousand pounds, and would be, under an intelligent parcels post. The rates could be put down, and it would not be long before we could have rates almost as reasonable as those in Europe. And, in addition, we can, from the additional profits, soon have the penny letter postage.

The express companies have been paying dividends of 38 per cent, and this is made through a violation of the law. What are you going to do about it? I would suggest that you write your Senators and Congressmen at once, urging them to support a progressive parcels-post measure. It will mean several dollars a year to you, as you will readily appreciate as soon as this betterment is in operation.

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

I am glad to note, Mr. Editor, that you have reached the point where you do not say that a sealed cover is *absolutely* the best thing for our colder climate, and I confidently expect to see in the near future that you will be quite *sure* they are not at all desirable, and that a dry *porous* material next to the bees is altogether to be preferred for outdoor wintering.

These notes are written March 11, and this month so far seems likely to keep up the record for cold weather that has been established by the two months preceding. While every day in March has been fine and clear—bright sunshine prevailing about all the time, with no storms whatever—yet for all that, on eight mornings out of the eleven the thermometer has registered from zero to five below.

P. C. Chadwick says, page 101, Feb. 15, that the average mortality of bees in California is ten per cent per annum. If that is correct, a lot of the talk about the wintering problem in the North is exaggerated, comparatively speaking, for many beekeepers in the colder climates do not lose more than that annually. In fact, I have good reason to believe that some of those who pay close attention to requeening, etc., do not have as high a rate of mortality as that.

By the way, the Feb. 15th issue is quite a "chicken special," and, judging from the different articles given, many beekeepers are "chickenkeepers" as well. One of our most successful men in Ontario combines chickens, bees, and fruit, and he certainly makes good in all three branches. Just a question whether a combination like that is not better for many than "keeping more bees." No doubt all will depend on the makeup of the man who is most concerned in the matter.

In reference to G. H. Bedford's plan of finding queens, p. 720, Dec. 1, the plan certainly looks easy. However, if they drive up as easily as he intimates, I would prefer to allow bees, queens, and all to go right up, with no excluder to hinder their progress. Then I would invert the prepared crate with the wire-cloth sides, and drive the bees down through an excluder into the hives again. In that way it seems to me that the queen would be sure to be found. If I relied on finding her trying to get up through the zinc I am afraid she would be overlooked too often.

Every year about this time, or earlier, reports appear from different sections further south, to the effect that the bees have been shut in five or six weeks without having a flight, and the fear is expressed that loss

will result from this cause. What has always puzzled me is, why a few weeks should work disaster, when we in the North often go from four to five months without having a day that the bees can take a cleansing flight. This present season our bees have not had a flight for three months, and during all that time we have had more zero weather than many of us have ever experienced before. Yet for all that, the bees appear to be wintering all right outdoors; and if we should have a good day in the near future, I do not look for very heavy losses. The exception in my own apiaries will be almost altogether confined to the 20 hives I mentioned in the February 1st issue as being wintered with no packing, the hives being constructed with double boarding with heavy paper between the two.

Regarding protection of apiaries in the matter of windbreaks, I must disagree most emphatically with friend Holtermann when he sanctions high board fences for that purpose. While I would sooner have a high board fence than *nothing*, still it would be my last resort. My favorite location, when it can be secured, is a site some distance south of a row of evergreens, with the bees in an orchard if possible. One of my apiaries has evergreens on the north, east, and west sides, and is right in an apple orchard. The protection is about as near ideal as possible. Another yard is also in an orchard, and has a row of evergreens on the north side. Still another yard is in an orchard; but instead of evergreens the farm buildings are on the north side about ten rods away, and this breaks the north winds. In all three yards the bees winter well as a rule. At the home yard there is a high board fence, and I certainly do not compare it with the evergreens so far as giving shelter to the apiary.

About the middle of February we had a day that was *almost* warm enough for the bees to take a flight; but the wind was blowing cold from the north, although the sun was shining brightly. In spite of any thing we could do to prevent it, a number of colonies got stirred up, and a few bees came out of the hives. Wherever the bees fell on the snow where the sun would strike them, they got up and flew again; but if they fell in the shade they were done for. Toward evening I happened to take a look on the north side of the board fence, and there was a distinct line made by the dead bees that fell within the space nearest the fence that the sun did not strike. Scarcely a bee was on the snow beyond that line, but for eight or ten feet all along the fence there were hundreds of bees. With a protection higher than the fence, and further away from the yard, the conditions that caused the loss of so many bees are done away with.

Conversations with Doolittle

At Borodino, New York

TRANSFERRING BEES.

"In some frames which I have bought the combs run from one frame to another to such an extent that I can not get any of them out without tearing them or the combs, or both. Please give something in GLEANINGS regarding such a state of affairs."

As I frequently receive letters of a similar nature, it may be well to devote a little time to this subject, even though it is a matter which has often been written about, and one found in practical books on bee culture. Our questioner puts the matter of crooked combs very strongly, for I have yet to see that colony of bees whose combs are so very crooked, or which run across the frames so badly that they can not be utilized in transferring to other frames, and the frames they were in at first remain fairly good after the combs are cut from them, so that they can receive the combs from the second colony worked upon.

The first thing necessary is to decide on the time to do this work. My time has always been during the blossoming of the apple trees, for at this season there is little honey in the way, and the combs are not very full of brood unless there is an earlier yield of nectar. With the first flow of nectar to a sufficient extent to attract the bees into the fields in large numbers, and to enable them to secrete wax enough to fasten the combs together, and to the frames, is the right time. Drive the bees away from the sides of the hive to which the combs are attached, and with a long knife or chisel cut these attachments so that nothing holds to the hive save where the ends of the frames rest. Next blow smoke enough over the tops of the frames to drive the bees off. Turn the hive bottom side up at once on an old blanket. By this time the bees will have become demoralized and quite well filled with honey. Place a box over the bottom of the hive, and give a few strokes either with the fists or with some sticks. The bees will at once proceed to run up into the box, and in a few minutes all will cluster there.

This box of bees can then be set on the old stand, the old hive lifted off the whole mass of combs and frames, and the work of cutting out the combs to the best advantage and fitting all the worker comb into frames can be started. When all are nicely fitted into the new frames, and these frames put in the old hive (if that is good enough to use, or if not, in a new one), this hive containing those combs which are judged useful should be set on the old stand, and the bees from the box hived into it, the same as is done in hiving a natural swarm. If there is not sufficient comb to fill all the frames the hive will hold, a division board is placed next to the last comb put in (a bee

space from it), and the colony kept thus until a time comes when they will work foundation, when frames of foundation are inserted in the vacant space. Or if one happens to have empty combs in frames of the same size, this vacant space can be filled with these at the time of transferring. This is similar to the way our fathers transferred, and the plan used at the great field-day meeting in June, 1906, near Philadelphia, by Prof. Surface who demonstrated before the thousands gathered there at that time.

But there is another way which I consider fully as good, if not better, for modern beekeeping. This latter plan allows the beekeeper to wait till nectar is coming in quite abundantly, or till about the time the bees swarm naturally, when a new hive with a full set of frames filled with comb foundation is prepared the same as if hiving a natural swarm on frames filled in this way. This new hive is set on the stand of the colony which is to be transferred, and most of the bees and the queen are driven into a box as before, only the hive and combs are not disturbed by cutting or otherwise. After the queen and about two-thirds of the bees are in the box, the old hive is removed to a new stand, and the bees are hived from the box into this new hive as before. They will at once draw out the foundation in the frames, and the hive will soon be completely filled with the very best worker combs possible, and a good colony for securing surplus honey. In 21 days in the old hive with crooked combs will be a young queen about to begin to lay, or already doing so. The worker brood will have emerged from their cells, and every thing will be in shape for another transfer. The process is the same as the first, except that now *all* the bees are driven off their combs and hived in another new hive, prepared as was the first. We now have these old crooked combs where we can do what we please with them, while the bees are all on (or will be as soon as the foundation is drawn) the very best all straight worker combs, such as make the eyes of any apiarist sparkle with delight.

Now, what shall be done with these old crooked combs? Some say dump the whole thing into the solar wax extractor, and let the sun separate the combs from the frames and the wax from the honey, as all can then be used to better advantage than in any other way. Without question, this is the easiest way out; but some way the heart of the one who commenced his beekeeping life between 30 and 50 years ago, before the advent of comb foundation, when every inch of worker comb was considered very valuable, still considers such comb of more worth than the wax it contains, therefore he generally fits all of the best of it into frames for use again.

General Correspondence

INTERNATIONAL AUTO WAGON SAVES EXPENSE OF HIRED MAN

BY N. L. HENTHORNE

In this section of Colorado, thirty-five miles north of Denver, in the Platte Valley, bee range is rather limited, thus making the maintenance of large apiaries in one location not conducive to the best results. The only alternative is to place from fifty to seventy-five colonies in different places throughout the district. I have between 500 and 600 colonies within a radius of twelve miles from my home, and this necessitates traveling from 100 to 150 miles every week during the swarming season. In order to get the work done I was obliged to keep a man to assist me; and my experience with hired help during the swarming season has been far from satisfactory at the best. The long drives I was compelled to make every day during the summer were very fatiguing, for considerable time was spent on the road alone; and in order to keep the horses in shape I could not overwork them; and the cost of maintaining a driving outfit in this country amounts to about thirty dollars a month.

A very important advantage of a motor vehicle is in getting to a yard and away again with a load of honey. With horses it is always risky if not dangerous.

In view of the objections to horses as given, I became convinced that the automobile is the only means of transportation in the bee business, and I decided to buy one. Upon investigation I learned that I could buy second-hand machines in Denver at prices ranging from \$100 to \$600; but I knew nothing at all about automobiles, and I believe investments in second-hand machinery to be inadvisable at best. Therefore I bought a new truck, manufactured by the International Harvester Company, the solid tires and the air-cooled cylinders being strong points in its favor, in my estimation. The car is ostensibly built for service; but by adding a rear seat it can be turned into a pleasure car, as it rides quite comfortably.

I held the wheel of my machine for the first time at four o'clock on the afternoon of July 11, 1911. The morning of the 12th I loaded on 72 empty eight-frame comb-honey supers, and ran out 7½ miles into the country, did the necessary work there, and reached home in time for the midday lunch. In the afternoon I went nine miles in another direction, arriving home at 5:30.

Aside from the usual minor troubles of the inexperienced driver, I have had no trouble whatever with the machine; and in the 4000 miles of travel which I have covered with it I have not paid out a cent for repairs aside from one slight accident to the engine. During the summer I can make

the distance of 100 miles with a load on eight gallons of gasoline and one gallon of oil—the former at 14 cents per gallon, and the latter at 48, making a total running expense of \$1.55 per hundred miles. This machine can carry 1500 pounds twelve to fifteen miles per hour, and I have run into Denver with a load of honey, and out with supplies, in one afternoon—a distance of 70 miles, round trip. Mr. Rauchfuss, of the Colorado Honey-producers' Association, will verify my statement that my honey arrived at the association in better condition than any other he received. I now expect to do all my own work this summer with the use of the truck. I can haul from 55 to 65 cases at a trip.

Naturally there will be the expense of new tires in the future. The cost of tires is nine dollars each, put on; but I can say that I have never been delayed a minute because of tire trouble. I have made several trips into the mountains with my truck, and it works well on the mountain roads. I can hardly wait until fishing time comes for a run into the hills. I have used the machine in mud and sand with good success. Like all machinery it requires good care in order to do good work.

Platteville, Colo.

♦ ♦ ♦

REO DRIVEN TEN THOUSAND MILES WITHOUT REPAIRS.

BY C. A. KINSEY.

Since April, 1911, I have been driving a 1910 25-30 h.p. five-passenger Reo, and have covered between eight and ten thousand miles. I have had no repairs made on the car so far, outside of tires, except to grind down two exhaust valves. The tire expense is something that depends a great deal on the quality of the tire, kind of roads, and, most of all, on the carefulness of the driver.

With this Reo it is possible to start out at 7 o'clock in the morning, with six grown people, two children, nine and ten years of age, lunch-baskets, fishing-tackles, etc., and go 45 miles up a rocky canyon into the heart of the Rocky Mountains, making a rise of nearly 3000 feet, spend a good part of the day fishing and berrying, and get home again at 7 P.M. This car ordinarily will travel 15 miles on one gallon of gasoline. In this Gallatin Valley, surrounded by mountains, there is always an up grade, either going or coming, from 30 to 50 feet per mile. There is one particular road that rises some 1700 feet in a little less than four miles. The Mitchell and the Reo, with favorable conditions, will take this grade on "the high."

I know from personal experience that an auto is a boon to beekeepers. There is no danger from stings and resulting runaways as with horses.

Belgrade, Mont.

REO USED FOR DELIVERING HONEY IN THE WINTER

BY JOHN C. BULL

I use my automobile mostly for delivering honey, as I work the house-to-house trade in the winter. My machine is a Reo two-cylinder five-passenger touring car, with detachable tonneau. I take the tonneau off and put on a box for delivery work. I bought my car second hand after it had been used for about 16 months. I have had it 19 months, and have driven from 5000 to 6000 miles. The territory that I cover selling honey is 30 miles across; and to cover that ground with a horse and wagon would take twice the time. With the auto I can leave headquarters in the morning, drive 10 or 12 miles, then deliver \$75.00 to \$90.00 worth of honey, and be back for supper, while to drive that distance with the average horse would take nearly all the day on the road, considering the loads that I carry, which sometimes amount to 725 lbs. at a trip.

As to cost of upkeep, if the auto is used every day, and the horse the same, I think the cost would be nearly equal, although the auto would cover two or three times as much territory as the horse. The horse requires attention three times a day, while the auto, when not in use, costs nothing; and the time required to keep a car in shape is far less than taking care of a horse. The auto can be looked over and kept in shape at odd times or stormy days, so the time is not missed.

As to reliability, almost any of the standard makes of car have passed out of the experimental stage. In the last two winters I have delivered some 26,000 lbs. of honey with my car, and have never been obliged to find another way to finish up a day's delivering. I use it all winter, through cold, snow, and all kinds of roads. I find I can go almost anywhere a horse-drawn vehicle can. If a man has a car that can be used for pleasure or business both, he will find the pleasure ride is something that can not be measured in dollars and cents.

Any one who has several out-apiaries and lots of traveling to do on the road will find a good automobile the best and most paying investment he can make.

Hammond, Ind.

WHY WE INVESTED IN A MOTOR BICYCLE

BY C. CALVERT

To explain matters, a friend and myself run about two hundred colonies of bees of our own, and we also have the oversight of about sixty colonies belonging to a friend who at present is abroad.

Our own bees are located in various apiaries containing from thirty to fifty colonies each. These apiaries are situated ten, eleven, twenty-two, and forty miles away from this town, so we have found it a weary and exhausting task to make the rounds of all of them on the ordinary bicycle. For example, to cycle nine or more miles up to

the Cotswold Hills, do a heavy day's work, and then to return home on the cycle, perhaps when it is windy, or when the temperature is 90, in the shade is somewhat like hard labor. So we determined to have a motor bicycle with a side car. The seat of the latter is detachable, and an oblong-shaped box with sides a few inches high, and large enough to carry a couple of hives of bees, can be screwed on in place of the seat. This box is also convenient for the conveyance of syrup to the apiaries, and for bringing tins of honey home for bottling. It will, we hope, save a carrier's bill—a serious item to the bee man who does not keep horses. Driven bees, too (a commodity you probably do not know the meaning of in America, where I suppose straw skeps are not used), may be obtained at long distances, and conveyed easily on a motor cycle. It is estimated in this country that such a machine may be run a year at an expense of less than one penny a mile. This is, of course, taking into account petroleum, new tires, breakages, license—in fact, every thing, and it is well-spent money, seeing that it saves, first, the wear and tear of bicycles for two men; and, second, a carrier's bill for conveyance of bee produce, feeding syrup, and appliances, and that it provides a quicker mode of transit to one's work, at which the bee man arrives perfectly cool and fresh, besides getting in two or more extra hours' work a day which otherwise are spent crawling on the ordinary bicycle.

Cheltenham, England.

HAULING HONEY FROM OUTYARDS IN AN E. M. F.

BY ROY TAIT

In the spring, and during the first part of the season, we make the rounds to the outyards once a week in the auto. We leave home about 6 A.M. with extra hives filled with combs or full sheets of foundation, and at about 7:25 I reach our mountain yard, 20 miles away. Our first machine was a Maxwell; but now we have an E. M. F. 30 h. p. model. My next machine will be built to order. It will have an E. M. F. 30 h. p. engine, the Cartecar friction transmission, and the Midland full-floating rear axle—that is, if I can have it built that way. I believe the E. M. F. car as built to-day, with removable tonneau, is the best car on the market for the money—\$1100 at the factory. Its simplicity and durability will at once appeal to the mechanic as well as to the man who knows nothing about machinery.

The greatest nuisance in motoring is the pneumatic tire; but the trouble can be overcome to a certain extent by using inner linings, which prolong the life of the outer casing about one-half.

I would not think of keeping bees in outyards without an automobile. When I read of a man going to dozens of yards with a horse, I wonder.

Grand Junction, Colo.



Wesley Foster and the Brush Runabout, purchased by the State of Colorado for use in bee inspection.

AN AMATEUR AUTOIST

Some Knowledge Gained by Experience with a Brush Runabout

BY WESLEY FOSTER

Automobiles are taking such an important place in the beekeeping world that possibly my first month's experience with one may be interesting and valuable to the owner who is already or soon will be in the same fix that I am. December 1, 1911, I knew almost nothing about autos except that they have been honking at me at every crossing, and throwing dirt and burnt gasoline into my lungs ever since Bryan ran for president. Previous to December I had enjoyed perhaps three rides in automobiles. I had also run my uncle's gasoline-engine to operate a buzz-saw for making some bee supplies. The extent of my knowledge had been in reading advertisements and watching the changing models from year to year. I knew that, to be right up to the times, one must have a new auto about every six months, but I did not know the use of a carbureter, spark plug, magneto, nor the various levers.

On Dec. 1 the State purchased a Brush runabout for my use in bee inspection, and since that time I have been getting acquainted with nuts, burrs, grease of three kinds and oil of two, well scattered over my anatomy and clothes. I have washers and burrs in every pocket, and nuts and screws in my pocketbook.

December 2 I went to Denver to bring the runabout to Boulder. The Overland Auto Co., from whom the auto was purchased, sent a young man along to show me how to run it. We left Denver about 3:30 P.M. for the 32-mile drive to Boulder. The mechanic ran the machine to the outskirts of Denver and slowed up to let me take the steering wheel. A sudden crack, and our plate-glass windshield curled right over the engine shield! The nuts of both braces of the windshield were gone and the bolts were lost. We had not seen that everything was tight before starting.

We took off the windshield, and my companion carried it in his hands the rest of the way. I got along well running the auto on the straight road; but when it came to passing a hay-rack I nearly always forgot for an instant just what to do, and would put on the brake, thus throwing the engine out of gear, so that it would get to "going like sixty," buzzing and singing like a drone. After having passed the team I would release the brake and let the engine back into gear so suddenly as to give it an awful wrench, sending the car ahead with a mighty jerk. Now I have learned how to pass teams with little difficulty and no jerking.

Well, I ran the auto all the way home without the mechanic taking hold of any thing, though he gave me "pointers" and advice several times. The most valuable point for me right at the start was my bicycle experience in holding the handle-bars



The Reo 1500-lb. truck which is equipped with a single-cylinder 12 h. p. motor, planetary transmission, and a 44x72 inch body.

firm, and also A. I. Root's suggestions and caution some time ago about guiding or steering too much.

It was dark when we reached Boulder at 6:15 P.M., and the last twelve miles were driven by using the acetylene-gas lights; but I took the mechanic to the train for his return trip and drove the auto home alone. I did not attempt to run it into the barn by its own power, but pushed it in by hand. I turned out the water by opening the faucet on the engine and radiator so it would not freeze, as we had no anti-freeze mixture in the radiator.

The next morning in reading the instruction book I found that the oil on the dash-oiler should have been turned off. I hurried out to follow out this injunction, but the oil had been running all night, and there must have been nearly a quart in the engine. We had a hard time getting the engine started. We put hot water in the radiator, gasoline in the cylinder, washed the spark plug in gasoline, and primed the carbureter by pulling the little wire provided for this, but the engine would not start until we had worked with it for an hour or more. Then how smoky was the exhaust caused by the burning engine oil! I had three large blisters from cranking the engine, and was tired out when it started.

The next day we could not get the engine to run at all, and called in an auto-repair man. He found that the batteries tested only ten instead of twenty-five. After he put in new batteries all was well. This is a

point to remember: Batteries weaken from becoming old. The batteries in this car were new when they came from the factory, but they had become worthless from standing in the store room. Be sure to have the batteries tested before buying.

The barn in which we keep the auto is so cold that we have been letting the water out from the radiator every night. The faucet is hard to get at, and has a nail hole in which to insert a nail to turn the faucet. To save trouble we thought it would be a good idea to leave the ten-penny nail in there, but soon learned by sad experience to remove it. Three holes had been punched in the sheet-steel dust-guard under the engine.

A five-gallon can of gasoline which we kept at first in the auto back of the seat knocked off several square inches of varnish so now we are wrapping cloths or sacks around every thing we put in behind. The other day we got tired of emptying out the water every day, so we got a gallon of wood alcohol for \$1.00 and made an anti-freeze mixture of 40 per cent wood alcohol and 60 of water. Since then we have been leaving this in the radiator. Some auto men say that this often will not work, so I have been keeping the radiator well protected besides. The Brush has a single-cylinder 10 h. p. engine, and is hard to start when the engine is cold. I have had to jack up one of the rear wheels when starting, as the transmission sticks a little, the car being new. This lets the wheel turn, and the engine will go on the second or third trial. I often have to ad-

vance the spark and pour some gasoline in the cylinder before the engine will start if the day is cold.

The book of instructions says, "Never advance the spark before getting the engine started, as there is danger of a back kick." But as the Brush engine runs opposite to most motors, the result of a back kick would be to throw the hand out of the way, and no damage would be done unless one's knees were in the way. I keep my feet out of the way and have not had a back kick yet.

Most of my trouble has come from not oiling enough. The engine has stopped several times for this reason. On one occasion, when only three blocks from home I looked into the gasoline-tank to find it as dry as a bone; but I managed to run the machine within a block of home on the gas in the tube and carbureter before it stopped. I had to take the gasoline out of our stove to finish the trip, then rush up town and get back with a new supply in time to save the baking which my wife was doing at that time.

One of the beauties of the Brush runabout is that it is so light it can be lifted around by hand. I do not need a jack to lift a wheel. It will run 25 miles on a gallon of gasoline, which costs $12\frac{1}{2}$ cts. at the refinery two miles from our house. On Colorado roads it will run from 15 to 18 miles an hour; and for short spurts, perhaps 25 or 30 miles.

Our Colorado mud has so much alkali that it will dull the varnish; and some small specks that I left on for several days took the varnish off entirely. It will pay every auto owner to remember this. The varnish was taken off from the steel parts, not on wood. Letting out the hot water from the radiator on the varnished steel turned it from black to a bluish color. Oh! one learns fast, I can tell you.

We inspect the auto often, and keep bolts and nuts tight. One of the gasoline-tubes leading to the carbureter began to leak, and we unscrewed this and put some white lead in the threads, screwed it back into place, and it has not leaked since. An auto-repair man told me this.

My father-in-law has helped me grease, oil, and crank and generally fool with the auto. He is also very much interested in chickens. The other day he made a contract to furnish 500 baby chicks, and is planning to buy an incubator. Well, we found that the radi-

ator was not quite full; and so, as the per cent of wood alcohol in the radiator was a little below the 40 per cent average, he took a pint and a half down to pour in; but he was thinking about that incubator, and poured that wood alcohol into the *gasoline-tank!* Well, we asked our all-knowing repair man whether harm would come from such a mixture. He said we had better draw it off and put in new gasoline. It took us an hour to draw it off through the faucet on the under side of the carbureter. We found that the gasoline came to the top, so we poured the top off and threw the wood alcohol away, and are using the gasoline in our stove in the house.

Fully equipped, the Brush costs \$450 in Denver (\$400 at the factory), and the makers say that it can be maintained for three to five dollars a month—a claim that I can well believe. At any rate, it is cheaper by far than a horse, when gasoline and oil are worth $12\frac{1}{2}$ and 50 cts. a gallon respectively. It is a time-saver also, and its ways are as easily learned as the nature of a horse. The Brush has room for an extra seat behind for a few bee supplies. As it is, twenty supers may be carried, but by making an extension box, forty or fifty could be hauled very easily.

Boulder, Colo.

[You will very likely find that you have already had nearly all the trouble that you will have for some time. A beginner with an automobile, as with any thing else, makes a good many blunders at first; but after he becomes accustomed to the car and its eccentricities it will run along very steadily and give practically no trouble—that is, if it is a well-designed machine.

The wood-alcohol solution for an anti-freeze mixture in the radiator does very well if you are careful to test the density of the



J. R. Heaton's Cadillac, which he purchased because of having a very severe attack of automobile fever.



Cadillac owned by R. L. Watkins, Selma, Cal.; bought primarily for a pleasure car, but used constantly in a 600-colony business.

liquid with a hydrometer each time you come in from a run, and add more alcohol if necessary. The point is that the alcohol boils or evaporates much more quickly than the water; and, even in a run of a few miles, enough of the alcohol may evaporate to make the mixture unsafe if the temperature should fall considerably while the car stands for a few hours.

On this account a safer mixture is one made up of equal parts of glycerine and water. This costs more at first but the glycerine does not evaporate, and the mixture may be saved from year to year, kept over summer in jugs, and used again and again. This solution has no bad effect on the metal parts of the cylinders or radiator; and, while some claim that it attacks the rubber-hose connection to a certain extent, this objection does not seem to be a very serious one, for we examined the rubber connections in a car that had been in use three winters and found that the glycerine had not hurt them a particle.—ED.]

THE CADILLAC, USED BY A CALIFORNIA BEE-KEEPER HAVING 600 COLONIES OF BEES

BY R. L. WATKINS

My car is a 1912 model five-passenger Cadillac. I selected this particular make because it seems to be the best car, and the one that has the best equipment of any at a reasonable price. It has electric lights, an electric self-starter, and every manipulation is made from the seat. I have driven it 1400 miles, and have never had a crank on it, and have never had to make an ad-

justment of any kind—have not even had a puncture. It is equipped with oversized tires, 4 x 37, with staggered tread on the rear wheels. A four-cylinder Kellogg air-pump inflates the tires.

I bought the car more for pleasure than any thing else; but I believe it will pay for its upkeep in my business. I have 600 colonies of bees located in ten different yards from four to fifteen miles from home, and I do all the work myself; and with my car it is almost like having them all at home. As the roads are good, it takes only a few minutes to drive fifteen miles. If necessary, I can visit every yard in one day, and have time for considerable work.

Selma, Cal.

AN AUTOMOBILE FOR ALL THE FAMILY

BY J. R. HEATON

In the spring of 1911 my wife and I each had a very severe attack of fever. In fact, all the children had a touch of it too. (There were only five of the children at home at that time, the other four being away.) We lingered along quite a while, but did not seem to get any better. One day our family doctor came by in his auto, and stopped in front of the house where I was mowing the lawn. I went out to have a friendly talk with him, and, in the course of our conversation, the automobile question came up. I told him that we were all about sick; and when he asked about the symptoms I told him I believed we had the automobile fever. That day we decided to cure ourselves of it, or at least to take a dose of medicine for it.

The first thing that we had to decide, after we concluded to buy a machine was what size and what make we would get. I have a large family; and as we wanted a car for pleasure-riding more than any thing else, we decided we would get a five-passenger touring car so that we could take as many as seven persons at a time if some of them were children. We knew that we would have to have plenty of room, so we began to look for a machine having a long wheel-base and one with a roomy body. We knew such a car would cost us between \$1600 and \$2000—a lot of money to put into a thing just to ride in; but we had the fever pretty bad, and we wanted to cure it, even if it did take \$2000.

I had a son in Indianapolis who had gone to the Indiana Automobile College, and who was driving a machine in the city at that time. I thought his judgment would be worth considering, so I went to see him to look for a car that would suit us, and also to get his advice as to what make was the best and cheapest for the money. Indianapolis is a great distributing center for automobiles. One can find any thing in this line from \$350 to \$6000. (I thought one costing less than \$6000 would do for us.) At first we looked at some second-hand cars, as I thought we might find one that would suit us that we could buy cheap, and that would be good enough for a poor man and his family. I found that we were mistaken in this, however, so we turned our attention to the new machines. It would take too

much time to tell all the kinds and makes we looked at. I will only say that when we investigated the Cadillac we thought we had found just the car we had been looking for—one that was built right, was strong and very roomy—one that I would not be ashamed to drive any place in any city. I finally bought the machine, and the agent drove it home for me, as I had never had hold of a steering-wheel in my life.

The distance from Indianapolis to my home is 71 miles, and we made the trip in three hours and five minutes. That was not very fast, to be sure; but it was fast enough. I don't like fast driving. It is dangerous, and one can not see the country. The Cadillac weighs, when empty, 3100 lbs.; but for comfort and easy riding, a rather heavy car, and one having a long wheel base, is the best, for it will not bounce along and bump like a western bronco, which a short machine often does. Of course the real reason why I bought a Cadillac was because I liked it best. It just suited me so far as size was concerned, and I think it is the best car that is made and sold at the price—better, in fact, than many that sell for several hundred dollars more.

The Cadillac has three forward speeds, and I have never yet found a hill that I could not pull on the intermediate or second speed, even with a full load of five passengers. Besides, there are a great many other good features that I will merely mention. For instance, the metal trimmings are all nickel instead of brass. The nickel looks much



Chase motor truck, used by James Peterson, of Corning, Cal., for hauling bees.



Albert Snell, of Clayton, N. Y., in his five-passenger Ford.

better, and it is much easier to keep it looking nice. I have never had to polish the nickel, and the car now looks as good as new.

There are two complete and independent systems of ignition with separate spark plugs for each.

The oiling system seems to be about perfect. The oil is supplied to the crank case of the engine by a force pump which can be regulated so as to keep just the right amount in the case, and not so much as to cause smoking at the exhaust. One never sees the Cadillac going down the road smoking like a fire-engine. I can run one hundred miles with one pint of lubricating oil, and there is not a gear on the machine that does not run in grease or oil. The four wheels that carry the car will run 1000 miles with one greasing. It does not seem as though there could be much wear on any part of the Cadillac with such perfect lubrication.

Some cars use more gasoline than others. I do not know how the Cadillac compares with other machines; but I drove to Indianapolis and back, a distance of 166 miles, and used only nine gallons of gasoline, making about $18\frac{1}{2}$ miles on a gallon. I think this is very good for a heavy machine with a load of five passengers, such as I had.

EXPENSE OF UPKEEP

I have run my car 3082 miles, and it has not cost me a cent for repairs. My tires are in good shape, and I think they are good for 2000 miles more of travel.

The cooling system has never occasioned any worry. The water is forced through the radiator and around the copper water-jackets by a centrifugal pump, and the air is sucked through the radiator by a fan. The water never boils, but does what it is intended to do—keeps the cylinders cool.

Does an automobile pay for a business standpoint? I think it does. An automobile costing \$2000 will travel further than \$2000 worth of horses and carriages, and the upkeep will be less. Besides, much less time is taken, and the traveling is much more comfortable.

This article may sound like an advertisement for the Cadillac; but I have merely given my reason for buying the particular car that I did, and my experience with it.

Rosedale, Ind.

CHASE MOTOR TRUCK USED BY A CALIFORNIA BEEKEEPER

BY JAMES PETERSON

I am sending you a photograph of my automobile, with the last load of bees from an out-apiary. The machine is a Chase delivery wagon equipped with a three-cylinder two-cycle engine which will carry all I can pile in the body, at 15 miles per hour. I have had eight grown persons in it at one time.

This machine is one I bought last fall in Sacramento, paying \$300 for it second-hand. I do not know much about automobiles; but if I had it to do again I believe I would have a car with a four-cycle engine. This machine was not altogether satisfactory until I had a machinist rebuild the timer, since which time I have had no trouble.

The automobile is sting-proof, and saves a great deal of time in going to and from my out-apiary. The cart shown on top of the load is what I use to take the bees over the soft ground to the auto.

Corning, Cal.

[The two-cycle engine—that is, those similar to the motors used in boats—has not

been entirely satisfactory for automobile use in the past; but we understand that the present truck, built by the Chase Motor Truck Co., is giving complete satisfaction. It is still equipped with a three-cylinder air-cooled two-cycle motor, the smaller-sized trucks being fitted with a planetary transmission, and the larger sizes with sliding gear. This is a machine that has passed the experimental stage.—ED.]

— ♦ ♦ ♦ — **TWENTY MILES TO A GALLON IN A FORD**

BY J. H. THOMSON

Though I am a beginner I have sixty colonies, and I like beekeeping. It is a profitable business as well as good for pleasure. From one colony last season I sold \$25.00 worth of comb honey.

I have a five-passenger Ford touring car. I bought a Ford because I believe it to be the best car on the market for the money, and because the expense of upkeep is not so great as on other cars. I average about 20 miles per gallon of gasoline.

I bought the machine for a pleasure car, but find it useful for business too. In the five months I have owned it I have driven it 2550 miles, and three of the tires have not yet been punctured. The longer I have it the better I like it. It has proven so satisfactory in every respect that I don't see how I could get along without it.

Fowler, Col.

CARRYING HONEY, BUTTER, AND EGGS TO MARKET IN A FORD

BY ALBERT SNELL

In April, 1911, I purchased a four-cylinder 20 h. p. Ford touring car. I bought it for pleasure and for taking honey, butter, eggs, and other farm produce to market. It has proven very satisfactory. It will take the steepest grades "on the high" with five persons in, when other cars have failed. I ran it 2000 miles last season; and although our roads are stony and rough I have paid out nothing for repairs. The tires are good for another season. One gallon of gasoline will run it 20 miles, so it is cheaper than a horse.

I am a veteran of the civil war, 67 years of age, and never ran a car before this one.

Clayton, N. Y.

— ♦ ♦ ♦ — **THE AUTOMOBILE FOR OUT-APIARY USE**

BY J. A. GREEN

That the automobile may be made one of the greatest of time and money savers is becoming daily more apparent. To no one does this apply with more force than to the beekeeper who keeps bees away from home. The ways in which it may be helpful to him have been mentioned so often that it is hardly necessary to go over them again; but, briefly, the most important are these:



J. H. Thomson and family in their Ford, which they drove 2550 miles, and had only one puncture.



J. A. Green and his two-cylinder Reo carrying a load of forty supers.

The great saving in the time of travel. The man who has out-apiaries five, ten, or more miles from home must spend many hours on the road. This time, which may be called non-productive labor, may be shortened to approximately one third by the use of an automobile. The time of a man who is caring for a large number of colonies is very valuable during the busy season, and it is just at this season that the most traveling has to be done. At any season it is very wasteful to spend nearly half of your time in getting to and from your work.

A further great saving of time, labor, and worry is made because of the possibility of entering and leaving an apiary safely at any time of day, and of being able to drive up close to the hives to load or unload. It is wasteful of both time and labor to be obliged to stop your wagon some distance away from the bees, and carry all the supplies from there to the hives, and all the honey from the hives to the wagon, even if a wheelbarrow can be used, which is not always the case. Then there is the never-ending worry lest the horses should be stung in spite of all precautions, resulting, perhaps, in an expensive runaway and breakdown, to say nothing of the risk to life and limb. Many a time I have had to wait until dark before I could safely leave an apiary with my load, not getting home until nine or ten o'clock at night, which is neither pleasant nor profitable. A very successful beekeeper

once said to me, in talking on this point, "I am twenty years older than I was ten years ago." We owe it to ourselves and those dependent on us not to waste our energies by unnecessary work and nervous strain.

I have been using an automobile in out-apiary work for two seasons. My car is a second-hand Reo two cylinder five-passenger touring car which cost me in Denver \$400—somewhat less than a third of the price of the car similarly equipped when new. It had seen some hard service; but, being somewhat of a mechanic, I trusted to be able to keep it in running order. This has taken more time than I have liked, though otherwise the results have been fairly satisfactory. There have been occasions, to be sure, when things did not work quite smoothly, and sometimes these seemed to come at the most inopportune times. For instance, one night when I was coming home with a heavy load of honey the chain broke, twisting up the sprocket somewhat. I repaired the chain a couple of times, getting only a little further each time; and when darkness overtook me I had to telephone home for a team to come and haul me in. Next day Dr. Phillips and Wesley Foster were to be in our town, and I had expected to take them for a ride through our valley. I worked on that car until the last possible minute, and then had to give it up and admit that the thing couldn't be made to run reliably until a new part had been secured. Then

there was Prof. Blinn, the expert on cantaloupes, sugar beets, and alfalfa, whom I was to take on his way of spreading information throughout our farmers' institutes and rural schools. The car had been running beautifully the evening before; but in the morning it wouldn't go, and it continued not to go until I had spent a couple of days of strenuous toil on it. But such things are painful to remember, and I will refrain.

I have been unfortunate in my experiences with having work done in the garages, which I have found both expensive and unsatisfactory. Doubtless this would not be true in all cases. Of course not all have either the training or the equipment needed to do much automobile repairing; but every car-owner should learn as soon as possible to make at least all minor repairs and adjustments himself. A new car should give little or no trouble for a year or two, by which time the owner should be familiar enough with its mechanism to keep it in order with very little assistance.

This model Reo was so made that the tonneau, or back, was readily removed. To do this easily I have two small "safety lifts," or pulleys, with clutch, hanging from the ceiling overhead. These hold the load automatically at any height. One of these on each side is fastened to the ceiling over the car, the hooks engaging in wire loops slipped over the supports of the folded top. With these one man can easily raise the tonneau up out of the way. To put in place of the tonneau I have two backs, one of

which transforms the touring car into a neat runabout; the other into an express or delivery wagon. Without any help I have taken off the touring body and replaced it with the express body in nine minutes.

In getting a car which one expects to use in a commercial way the tonneau should be made so as to be easily removed. With many cars this can not be done. With some, the whole body could be removed, though this would require a much more expensive wagonbox to replace it. In some cars the removal of the body is not practicable. Unless there is some kind of box that will carry at least a small load, one of the most important advantages of the automobile will be missed, as out-apiaries demand a constant stream of supplies, and the greater part of the honey can be hauled back on the return trips, making special trips for that purpose unnecessary. If the automobile is wanted only for transportation, a motor cycle is much cheaper and even more speedy. Of course the motor car can be used also for the transportation of the family.

Get a new car if you can afford it. If you buy a second-hand one, be sure what you are getting. Many second-hand cars are better bargains, so far as actual use and value are concerned, than new ones; but usually they sell for about what they are worth, and there is always some risk in buying an old car. If it were not for this it might be advisable to get an old car for the first season, disposing of it after you had become familiar with motoring.



D. C. Polhemus' new building for a workshop, extracting-house, etc., and his two International auto wagons which he uses to carry the combs to and from the apiaries.

The illustration shows my business wagon with a load of forty supers on. There are generally one or two more grown persons in the touring car, and I have taken as many as thirteen in it, though such overloading is rather hard on tires and the machine in general.

The engine of this car is nominally of twenty horse-power, though figured by the rule generally used it is only eighteen, and at this altitude only fifteen, which is hardly enough for heavy loads on some of our hills unless the engine is working perfectly.

Some details on the construction of the express body may not be amiss. The foundation is made of 2×4's bolted down by the bolts or thumbscrews used to fasten the tonneau, with another pair set near the front end to overcome any tendency to tip down behind. Lugs into which to screw these bolts must be fastened to the frame of the car.

On this foundation is built the box 40½ wide and 56½ long inside, which is just right for eight hives or supers of the eight-frame size, provided there are no cleats nailed above handholes, which are a nuisance whenever hauling is to be done.

The front end of the box must be high enough, and sit back far enough to keep the load from sliding against the backs of the seat in front. The sides, which may be of any convenient height, are braced outside by L-shaped braces, which at the top are formed into hooks turned outward. One of these comes opposite the middle of each row of supers. A waterproof canvas over the top of the load is a protection against dust or rain, and helps hold the load together. A light rope, hooked back and forth through the side hooks, and tied in a single knot, holds all securely, yet may be removed in a few seconds. While an automobile may bounce considerably, it is not so hard on a

load, and especially does not shake it from side to side as badly as the ordinary vehicle.

Being an orchardist as well as a beekeeper I am obliged to keep horses. An electric railroad also runs close to my home and to my out-apiaries. I do not use either of these ways of traveling much in summer, but I consider the automobile practically indispensable.

Grand Junction, Colo.

AUTOMOBILES USED BY A 2000-COLONY BEE-KEEPER

Combs Hauled to a Central Extracting House in International Auto Wagons

BY D. C. POLHEMUS

The accompanying picture shows our auto wagons, one of which has been used three years and the other two. They are "Internationals," and they have been in use constantly from April to November each year, in going to and from our fourteen bee yards scattered over the county at a distance of from three to twenty miles from home. We have headquarters here in Lamar, where we do all the work such as putting in foundation, repairing supers and hives, and other work that is not necessary to be done at the yards. On our daily trips this ready-to-use material is taken to the apiaries.

Of course we do not make very long runs. This style of machine is not intended for fast running, like a pleasure car; but we make an average of twelve miles an hour on our trips to and from the yards, and carry from fourteen to eighteen full-depth extracting supers of honey. We have hauled at one time as many as 36 supers of empty combs.

Before getting a machine I felt that it would give us considerable trouble, especially as some of our yards are in irrigated fields, and some on sandy knolls. The roads are sandy some of the way, for we located the yards before we had the autos, and we picked out all kinds of out-of-the-way places. We are more careful now where we locate an apiary, for it does not pay to locate where we know we shall have hills, sand, and frequently mud to bother us every week of the season whether we use an auto or team and wagon.

We have had very little trouble with these machines. We go almost anywhere that one can with a horse



Ready for a quick run through mud or sand.



Interior of the extracting room, showing eight-frame extractor driven by electric motor.

and wagon, for, being of the high-wheeled type, and having solid tires, mud does not stop us unless it is very deep. We have not put on any new tires yet; but the three-year-old machine must have new tires on the rear wheels before we begin another season's work. A local blacksmith has bought a machine for putting on tires, and offers to put on two rear tires for \$35.00.

It costs about two cents a mile for gasoline and oil. We think the expense of keeping a machine is no more than keeping up a team, wagon, and harness, to say nothing of the satisfaction one gets out of the machine in the yard, and the time saved on the road. We would not try to get along without an auto for our work.

One of the main features of planning our work is to get the most out of the boys' time during vacation, and get as nearly finished up in the fall by time school commences as possible. We have thought of a heavier machine—one that would carry more honey—but have finally concluded that, as we have more or less sandy roads, and occasionally mud to go through, a medium-weight machine is better.

The International machine costs \$800, so we can use two machines and have no more money invested than if we had one of the larger style of motor wagons or trucks. We are not prejudiced in favor of the International, but have looked over other makes, and think that, for our work, it is the best we have seen. There are a good many days

in the year when we have very little if any load to carry, and this is something to consider; for, instead of having to run a lot of extra machinery over the country, we have a speedy and economical way of traveling.

We kept two teams before we got a machine, and still keep one, as we have some heavy hauling to do at times. Each of the machines will carry a thousand pounds; and as we go to some yard every day we get our honey in as fast as one man can extract it.

For several years our extracting was done at the outyards, and the honey run into five-gallon cans and hauled home every day. This plan has some advantages; but the cost in time and labor of keeping up a house at each yard, and moving the extracting outfit about twice a week, and seeing that the wants of a force of men are supplied, induced us to try a different plan.

The last four seasons we have been hauling all the honey home, where we have an eight-frame extractor run by an electric motor, which we think is the best power for running an extractor. Some may think this entails too much hauling of honey and supers; but we find we can take care of more bees with the same help, and do not need so many supers, as we keep extracting every day, which gives us a supply to take out to the yards each morning during the extracting season.

I might say a little in regard to our apiary work. We use both the eight and the ten frame hives; and while I have some prefer-



One of D. C. Polhemus' out-apiaries near Lamar, Colorado.

ence for the ten-frame I don't think there is any difference so far as results are concerned. We can give as much room in an eight-frame hive as any colony needs by piling up supers, and the eight-frame is lighter to handle.

We winter most of our eight-frame colonies in two stories. Of course this means such colonies as we run for extracted honey. The comb-honey colonies are wintered in one-story hives.

All our bees except one yard are run for extracted honey. This may be a mistake considering the demand for comb honey this year; but we have thought for some time we would quit the production of comb honey altogether. I like the comb-honey work myself, but it is difficult to get help that is satisfactory.

Our bees are all wintered out of doors, packed to protect them from bad weather. Some winters the packing is not necessary; but this winter, when we had a month of zero weather, the packing saved many colonies from freezing.

We unpack about the middle of April, and examine each colony to know about their stores, but disturb the bees as little as possible till the weather warms up good about the first of May. In this climate the nights are very cool till late in the season, and it is a disadvantage to try to work them too early. When the strongest colonies have their hives about full of brood we equalize, giving each of the weaker ones a frame of sealed brood.

We used to tier up the hives, and not extract much till the end of the season; but with our present method our hives never

get more than three stories high, and many of them only two.

Lamar, Colo.

THE "CADILLAC THIRTY" FOR BUSINESS AND PLEASURE

BY LOUIS C. KOEHLER

In June, 1910, I bought a "Cadillac Thirty" motor car. It is a four-passenger car with removable tonneau. I made a box with a roof which is put in place of the tonneau when I go to market. It has a door in the back, and will hold 500 pounds of honey besides sundry other articles.

My two main honey markets, Manitowoc and Two Rivers, are twenty and fifteen miles respectively from the apiary. Formerly it took me two days to go to Manitowoc, sell the honey, and return, wasting eight hours on the road. Now I can go to Manitowoc in one hour, sell the honey, and return before dark. I find the automobile very convenient in delivering honey. I do not have to bother with tying the horses, having them shy at other automobiles, and I have no bother and waste of time in feeding at noon.

In fifteen minutes I can replace the tonneau and then have a pleasure car. Besides using the car for the honey market and pleasure, I find it a great convenience during the busy season if I must go to some distant place rapidly.

My expenses for repairs have thus far amounted to ten cents, for welding the brake-connecting rod. I still have my original set of tires.

Mishicot, Wis.

COST OF RUNNING A SIX-YEAR-OLD REO

BY E. J. ADKISSON

I have a Reo two-cylinder touring car of 20 horse power. It has seats for five passengers, but the rear seat is removable by loosening two thumb-nuts. A "wagon box" can be quickly put on its stead. The box is 38 inches wide, 48 long, and 30 deep. It was made especially for hauling bees, hives, supers, and other things pertaining to bee-keeping; but we find that it has many other uses. We use it for carrying any kind of light freight up to four or five hundred pounds. Freight shipments of supplies from the depot, twelve miles distant, and pigs from a neighbor's place four or five miles away, may be mentioned as having been carried by auto in that box. It will hold twelve hives of bees without crowding; but when bees are moved in this manner, both slow and careful driving are necessary. The machine however will not "run away," no matter how many angry bees are flying and stinging. I can hardly say as much for the "shofer," however.

We have used the old Reo for many business and pleasure trips to Nashville. While the car is far from being up to date in appearance, it has a good motor, pulling up the hills very nicely, and gives as much speed on the level as the condition of our roads will allow. There are usually only two passengers, in which case the tonneau is replaced by a covered box or deck. The box is ten inches deep at the front, sloping to eight inches at the rear. It covers the whole tonneau space, 35x35 inches. It is fitted with a removable top or lid, having lock and key. We find this box a great convenience in carrying small wares such as eggs, butter, extracted honey, etc., to market, and bringing home small purchases from Nashville and West Nashville. This old car has been in use six seasons, and is still in good condition and in good running order. The upkeep expense to 1910 was about \$50 or \$55 per year. Of course, this does not include the cost of gasoline and lubricating oil, but does include every thing else—even the tire expense.

In 1910 I had to have a new transmission and water-tank put in, and also bought four Kimball steel tire-cases, a driving chain, one new tire, four inner tubes, tire-holder irons, horn bulb, tire-cover, tire-liners, tire-repair outfit, etc., amounting all together, including repairmen's and vulcanizer's charges, to about \$200.

For 1911 my expenses, outside of gasoline, grease, oil, and dry batteries, were practically nothing.

THE TIRE PROBLEM.

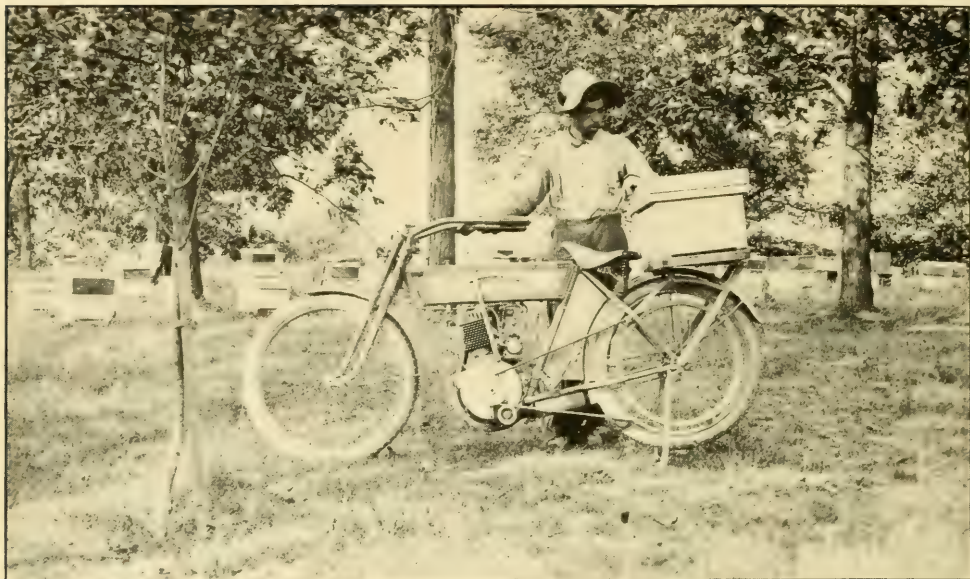
For 1912 the upkeep expense should be very light, as I do practically all of my adjusting and minor repairing. Two things of value that I have learned are that, with acid and cement properly used, an inner tube repair can be made that will hold as long as the tube lasts, and that a few drops

of sulphuric ether on a sponge placed in the carburetor intake will cause a motor to start on the coldest morning with very little cranking. I have taken an old tire, three or four years old, apparently rotten and worthless, having suffered a blow-out and rim-cutting; had the blow-out vulcanized, put in an interlock inner tire around the tube, a Kimball steel case over the outside, and have run it for fifteen hundred miles without puncture or blowout. New tires at that time were selling at a frightfully high price. Considering the prices at which good tires can now be bought, it probably does not pay to bother with old tires after they once blow out. For some time there has been a discussion in the columns of *Motor Age* as to whether or not it pays to have tires retreaded and blow-outs vulcanized. The general consensus of opinion seems to be that the same amount of money invested in the purchase of new tires is more satisfactory than having old tires repaired. Of course, there are exceptions. One is that of a new tire, or at any rate a good one, that has been cut by running over a broken bottle. Such a tire should certainly be repaired. It all depends upon the condition of the fabric of the tire and the skill of the repairer. A poor job of vulcanizing will ruin a good tire, while the utmost skill in vulcanizing can not restore a fabric that is rotten or worn out. It pays *big* to keep the small cuts in the tread rubber repaired, so that water, sand, and mud can not reach the fabric. There are various compounds sold for filling such cuts; but it is probably best to use one of the small vulcanizers which are made especially for such work and for repairing inner tubes.

A friend of mine, a commercial traveler, is using, on his Hupmobile runabout, clincher tires 30x3 inches, for which he pays \$10.60 each. He is going all the time, making from 25 to 125 miles a day, and states that these "cheap" tires are giving him a mileage of about eight thousand miles per set. He is a great believer in hard-pumped tires, keeping them inflated to even a few more pounds pressure than is usually recommended for tires of that size.

FRICTION TRANSMISSION BETTER THAN GEARS.

I am a regular subscriber to and reader of two of the leading automobile magazines; and the more I learn about motor cars, the more I am convinced that a car having a friction transmission is more satisfactory than one having a gearbox and clutch. It is generally known that the change-speed gears, the clutch, and the propeller shaft with its connections, such as bevel gears, universal joints, bearings, etc., are a frequent source of trouble—especially if these parts have had considerable use and are pretty well worn. A breakdown involving any of these parts is likely to occur far from home, and with little or no advance warning. The car must be "towed in" to the repair shop. Expensive new parts must be ordered from a factory which usually fills



Harley-Davidson motor cycle, used for carrying a load.

orders for such parts in a very leisurely manner, while you are losing the use of your car. None but an expert repair man should attempt to replace and to adjust such new parts.

In the usual course of events, however, the car is literally "torn to pieces" by young "cubs" who hardly know a monkey-wrench from a mouth-organ. When the time for reassembly arrives, a more or less skilled repair man tries to undo some of the harm the "cubs" have done. Such proceedings are not good for a car's health, to say the least. A well-designed and properly constructed friction transmission practically eliminates the troubles mentioned. It is easier to learn to operate than sliding gears, gives any number of speeds, is noiseless, does not break down suddenly, and repairs are inexpensive. The only part subject to much wear is the fiber facing on the cross-shaft wheel. It simply *wears* out slowly, giving ample notice, so that a new fiber ring can be kept ready to replace the old one when it becomes necessary. The services of an expert mechanic are not required, as almost any one can put in a new fiber ring in two or three hours' time, and the cost is about \$3.00. One of my friends had a fine 1910 Cadillac. Some of his transmission gears stripped off, and the repairs cost him \$40.00. The transmission of my old Reo "busted," and the cost to me was about \$65.00. Compare these expensive and troublesome repairs with the cost of a new fiber for a friction transmission. It may make you decide, as I have, that my new car must have a friction drive.

The leading makes of friction-driven pleasure cars are the Cartcar and the Lambert. Others are the Lincoln, Sears,

Petrel, Metz, Dispatch, Kearns, Duryea, and Rogers. So far as I can determine, the Lincoln and Sears are exactly the same car under different names at different prices.

Nashville, Tenn.

MOTOR CYCLE USED GOING TO OUT-APIARIES

BY W. F. DUNLAP

I am sending you a picture of a gentleman who, because of eye trouble, is unfit for many kinds of work. He has entered enthusiastically, and I might add successfully, into beekeeping. He is shown in the picture about to start for one of his outlying apiaries, on his motor cycle.

Milwaukee, Wis.

TROUBLE WITH THE SEARS

BY WM. MUTH-RASMUSSEN

During the 18 months that I have had my Sears machine it has been out of order nearly all the time, and I have been practically a prisoner at home. This car may do very well on city streets and on good hard roads; but with narrow solid tires it is entirely unsuited to sandy and soft country roads. I finally had to get a set of new wheels with pneumatic tires, for which Sears, Roebuck & Co. charged me \$170.00—just double the difference between the price of a car with solid and one with pneumatic tires, although I labored with them about the unreasonable-ness of this exorbitant price.

As soon as the new wheels arrived, two of the tires were leaking. When I reported this, Sears, Roebuck & Co. sent me two new

inner tubes; but these too have been leaking, and I have had no use of the machine, to speak of, as there has been trouble every time I had it out.

The new wheels cost me, freight and all, over \$200. The old wheels are useless to me; but if returned they would barely pay for the freight charges, as I have ascertained. I have spent over \$800 on the machine, and it has been nothing but trouble and vexation to me so far. There is no prospect of selling it here, and it would not pay to send it to San Francisco. If I had a spare building in which to store it I would have bought a new horse long ago, as I used to keep one; but I put a wooden floor in my stable for my auto, which is now occupying that building, and I can not afford to throw it out on the scrap-pile.

Independence, Inyo Co., Cal.

[I am sorry to get such a letter as the above; but it would be manifestly unfair to give our readers the impression that running an automobile is all fair sailing. I have had some years' experience with autos, and our family have owned and have run a number of different makes of cars, and I must say the Sears car has given me more service and more satisfaction than any other I ever got hold of.

In regard to the solid-rubber tire, when I ordered my machine I thought solid tires would be best for the Florida sand; but the company wrote me at once that they were sure the pneumatic tires would be much better; but a brother in Michigan bought a solid-tire machine, and he and I rode many miles through sand and through mud, right after a rain, and over rocky roads, without any trouble whatever. He has since run it on long trips over the desert between Phoenix and Pima, in Arizona, and, I think, with very little trouble except that he had to wait for his new friction filler, which he should have ordered in advance.

Now a word about inner tubes. We can not order these in advance and keep them in stock; for I am told that, especially here in this warm region, they last only about a year before they get rotten, or something like it. When I ordered my machine I also got an extra tube to be held in reserve; but this tube that wasn't used at all seemed to go to

pieces about as soon as the others. Well, if this is true (but I *hope* it isn't) suppose a dealer tries to keep a stock on hand (to fill "emergency" orders), if he should happen to keep a tube a year it might give no service at all, even if it was brand-new. Three of my four tubes began to give trouble in just about a year, and yet I had the very best make in the market. In the above case the company furnished two new inner tubes without cost, and yet it may not have been any fault of their own. Of course, I do not know just what kind of roads our good friend Muth-Rasmussen has in his neighborhood; but my impression is, if he will be patient and gradually learn to make needed repairs himself he will yet get not only much service, but much enjoyment out of his machine. This will have to be done, more or less, with the best machine made, no matter what it cost.

Permit me to mention, in closing, that Sears, Roebuck & Co. have just sent out the finest and plainest instruction book for their car I have ever seen for any automobile. It is profusely illustrated, and made so plain with arrows and numbers that any ordinary mechanic, with such a help, should be able to make his own repairs. Yes, it does usually cost something to keep an auto in repair; but it costs nothing when idle, which is not true of a horse.—A. I. ROOT.]

THE SEARS FRICTION-DRIVE TRUCK

BY GRANT ANDERSON

I have used an automobile for visiting my out-apiaries and for hauling light loads for several years, and would not think of doing without one. Several of my apiaries



If a box is properly strapped or tied to the luggage-carrier, quite a load may be carried successfully on a motor cycle.

are between ten and fifteen miles from home; and to drive that distance with a horse is tiresome and a waste of time. Then when a visit has been delayed from some cause, which will happen sometimes, and one finds several swarms out when he reaches the apiary he can hop out of the car and begin to hive swarms; but if he has a horse he must look after it first, to say nothing of the hour or hours lost on the road in getting there and the same in getting back or to the next yard. With an automobile I can reach any of my apiaries in less than an hour, and can work till dark if necessary, and run home by lamplight.

The first auto I bought was a Holzman, with high wheels and solid tires. This car has a long body and a removable rear seat. With this seat removed I have room for a lot of hives, camp outfit, or a lot of baby nuclei. This car has done good work for five years, and is in good condition yet, except the front axle, which was broken yesterday in a collision with a runaway mule team in the streets of San Benito.

I have another car that I bought from Sears, Roebuck & Co., Chicago. This car is a light truck with a long body and droptail gate. The wheels are 36 inches high, with solid tires. While I have not had it long, I am well pleased with it, and believe it will be a great help in hauling bees, honey, and other goods, as I can dispense with the horse and wagon to a marked degree. This little car was not built for speed, but it makes as much time, when not loaded, as I care for.

I believe this to be one of the best and handiest autos for beekeepers that is on the market to-day, and the price (\$375) is within the reach of all. I would advise everybody, before purchasing an auto, to write Sears, Roebuck & Co. for an auto catalog; also to The Chilton Printing Co. for a copy of *Cycle and Automobile Trade Journal*, Market and 49th St., Philadelphia, Pa. In that journal many makes of automobiles are advertised. I believe all the leading bee-men in Texas have an automobile. San Benito, a town less than four years old, has over one hundred automobiles in town and on adjoining farms.

Brother bee-man, get you an auto and add ten years to your life and many dollars to your bank account.

San Benito, Texas.

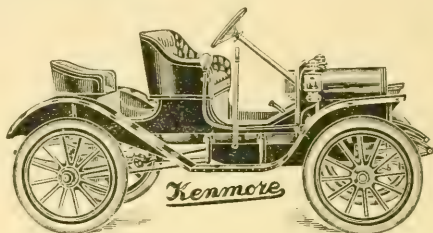
THE AIR-COOLED AUTOMOBILE PREFERRED

BY LOUIS WERNER

The first automobile that I owned was a 7 h. p. Brush runabout, equipped with a water-cooled one cylinder motor. I ran it one year; but it was too small, and lacked power. I also had a good deal of trouble with the radiator, as it kept leaking; and other things got out of order, so that I sold it last fall and bought a new machine—a 14 h. p. air-cooled Kenmore. This car is equipped with solid tires, and I can use it for delivery

purposes or for pleasure. By adding another seat it will carry four persons.

The cost of upkeep I have found to be very small, the only expense I had during the first six months being 75 cts. for a muffler. I have no tire trouble, and there is no radiator to leak. I find I can run this car for \$2.50 per month, including every thing. A horse would cost me \$10.00 to \$15.00 per month, whether used or not. The car costs \$500, and it is the best investment a bee-man can make.



This machine is well built, is strong and neat, and is very easy to run, so that I think it is an ideal machine for a beekeeper who has an outyard. It can be driven right in among the bees, and there is no danger of any horses being stung. I am in favor of an automobile every time, instead of horses, around bees.

Edwardsville, Ill.

WHY I BOUGHT AN AUTOMOBILE

BY P. H. BALES

I have 670 colonies of bees, located in ten apiaries from five to twenty-four miles from home. With the machine I can go to the furthest apiary, do a day's work, and return the same day.

European foul brood broke out among our bees, and they required so much care that I needed to be at several apiaries the same day. I bought the machine thinking I could give my bees so much better care that they would make enough more honey to pay for the machine, and I think they have done it—and the fun!

WHY I BOUGHT A MITCHELL

My machine is a four-cylinder, 1910 model, five-passenger Mitchell "30." I paid \$1750 for it two years ago. I bought this machine, because I thought it would give the best service for the money, and I think (after two years of use) I made no mistake.

I have driven 13,000 miles, and have discarded only one tire casing. The repairs have been practically nothing.

For hauling supplies I have an extra body that takes the place of the back seat. I have moved 260 colonies of bees this winter, 14 at a load, with extra supers on.

My machine failed just once to go, and I was seven miles in the country. I telephoned for the machinist to come and haul me in. He came out and threw off the emergency break, and said, "Now you are all right," and so I have been ever since.

My advice to prospective buyers is to use the same judgment in buying a machine as in buying a horse. The one that costs the least is not always the cheapest in the long run; and if the machine is being sold with a 3½-inch tire, have a four-inch put on instead. It will be money well spent.

Hanford, Cal.

USEFUL HINTS FOR THE PROSPECTIVE PURCHASER OF AN AUTOMOBILE.

BY CYRIL BRODNIX.

From my ten years' experience with gasoline engines and automobiles of some twenty-five or thirty different makes, I find that one of the most misunderstood points is the question of horse-power. The Society of Automobile Engineers' (S. A. E.) rule for obtaining horse-power is to multiply the square of the diameter of the cylinder by the number of cylinders, and divide by 2.5. The number of revolutions per minute, and the length of stroke of the piston, are not counted, although each has something to do with the actual horse-power that the engine is capable of developing. This rule, therefore, is only approximate.

An engine that will develop 15 to 20 horse-power is usually sufficient for a machine seating two or three people; and one that will develop 20 to 32 horse-power for one seating four or five people. A larger engine costs more to operate, and nothing is gained; for twenty-five to thirty miles per hour is as fast as it is safe to drive on country roads, and this speed may be easily maintained with the sizes of engines given.

The single-cylinder machine is the simplest, most economical, and the lowest in first cost; but single-cylinder motors are limited to 10 or 12 horse-power on account of the difficulty of cooling the piston if a larger cylinder is employed. The two-cylinder engine has some advantages over the single cylinder; but the four-cylinder engine is usually considered to give the best service on account of its more uniform power and comparative lack of vibration. The six-cylinder engine gives still steadier power, and has almost no vibration; but it is more complicated, more expensive, and much heavier than a four-cylinder engine of equal power, and for this reason it is very seldom used on cars selling at a medium price. The water-cooled four-cylinder engine, therefore, of the four-cycle type, located under the hood, gives the best service in medium-sized cars.

The engine should be so placed in the frame as to be easily reached for cleaning, adjusting, and repairing. It is a good thing if the crank case has handhole plates on the side to permit adjusting the crank pin or main bearings without having to remove the under half of the case.

The valves in the cylinder head should be of ample size, and located so as to permit

easy cleaning and grinding. The valve stems should have ample guides to keep them in line, and should be protected by some kind of housing or cover plate to keep out the dust and dirt, and also to muffle the noise.

If a water-pump is used it should be located so that the packing may be easily renewed.

The magneto should be in such a position that the contact point and connection may be easily inspected and tightened.

The carbureter should be set high enough in relation to the frame so that the gasoline feed-pipe may be readily disconnected for cleaning.

The oiling system should be capable of delivering plenty of oil to all moving parts all the time. Such parts as the pistons, wrist pins, crank pins, crank shaft, the half-time gears, cam shaft, cam-push rod, and valve stems should be automatically oiled. There should be rollers on the cam end of the valve-push rods.

The three-speed forward and reverse selective sliding-gear transmission is the one most used, and the one to be preferred on account of its positive action, long life, and freedom from trouble.

The clutch that gives the least trouble is the one that is the simplest and that has the fewest parts. The cone clutch having an asbestos fiber face is usually to be recommended on this account. A leather face is all right, although it is more likely to burn if the clutch slips.

The universal joints of the shaft drive should be so made that they run in oil, thereby reducing their tendency to cut.

The rear axle to be recommended is of the full floating type; that is, one in which the weight of the car does not come on the shafts that drive the wheels. The best rear axles are equipped with Timken roller bearings throughout.

There should be two sets of brakes acting independently of each other, acting on the drum attached to the rear wheels. The one set should be internal, expanding metal to metal, and the other external contracting, the band having an asbestos lining. The external brake should be used for service, and the internal for emergency. The objection to a brake on the driving shaft is that it sets up undue strain and jars on the differential and the rear-axle assembly in general.

Before buying a car it would be well to ask the dealer the following questions:

How many miles per gallon of gasoline and oil will the car travel?

Are the valve stems and springs of the motor protected from dust?

Is the water-pump easily repacked?

Are the magneto and carbureter accessible?

Will the clutch act smoothly without sticking or slipping?

Is the transmission case accessible?

Is the rear axle strong enough?

Thorpe, Washington.

BUZZINGS ROUSED BY THE MARCH 1ST ISSUE

BY ALLAN LATHAM

It is but natural that an unexpected article such as "A Contrary Beekeeper," March 1, page 133, should stir said beekeeper out of lethargy. Months have passed since Latham has written any thing for publication, his many irons in the fire occupying all his attention. There have been many times when he wanted to get up and speak, but failed because of insufficient stimuli. Large entrances, hard winters, paper protection, etc., as brought to the front March 1, together with that article of Miller's, are too strong, so here goes.

What the editor has to say about wind, protection, and cold spells is all good sound sense, even if he is a little off about inside temperatures. Wind is the great enemy of bees in winter, and no small antagonist in summer. Unless the hive be fitted with air-tight cover, with no chance for a draft, it would be folly to subject a colony to the rigorous trial which a cold wind will put upon it. Still air at zero is less of a hardship for a colony than a gale with the temperature 30 degrees higher. Large entrances so placed as to let a steady blast of cold air in upon the cluster will bring disaster. That same entrance so placed as to receive only winds of moderate temperature or deflected cold winds will tell a different tale.

Steady cold? Yes, that is what kills lots of colonies. The contracted cluster consumes all the fuel within reach, and starves. How combat such a foe? Fortunately, steady cold is rarely accompanied by sunless skies for many days at a time. So, let the sun break up the continuity of that steady cold. Here is where the big entrance and the black paper do the work. The black paper catches the heat and passes it slowly through the walls of the hive, and stirs up that contracted cluster. New fuel is brought in from the stores near by. The weary insects stretch their limbs and take new courage. The big entrance carries away the dampness, and the cold is less deadening. Night comes with the steady cold again ascendant, but the little furnaces are going full blast with plenty of oxygen to furnish good clean burning. What satisfaction to see the vigor and clean health of those same bees when April comes!

True, there is much in locality. I have found it true even with "let-alones," and there is one place down on Cape Cod where I have had to cut down those big entrances. Why? Because a long stretch of sand allows the damp ocean breezes to sweep unobstructed right into those hives. This present winter I have again left them wide open to put the matter to a further test. The severe winter will give a faithful test.

Yes, it is a severe winter here; but, though Norwich is but 50 miles from Providence, where Miller lives, this winter does not compare in severity in Norwich with the winter of 1903. That winter no flight came to the

bees from Nov. 19 till March 22. It was stated that 75 per cent of bees along the New England coast perished that winter. This present winter will see the end of many colonies, but only of those not properly supplied with stores or those weak in bees. My own colonies at present date (March 8) are in splendid condition, having enjoyed flights in December, January, and February, each month furnishing an ideal day for a cleansing flight.

Mr. Miller has painted a very rosy picture of the let-alone hive. Be it known that there are troubles with these let-alones which are peculiar to them. This system of beekeeping has its fine features, and teems with interest; but it furnishes no quick road to wealth, nor need a lazy man look upon it with too optimistic a gaze.

Norwichtown, Conn.

PUTTING BEES ON THE SUMMER STANDS

BY B. H. TRIPP

With the first warm days of spring comes the desire to get the bees out on their summer stands. Oh how one longs to watch the busy little workers hustling with their duties for the good of the colonies! But it will not do to be in too much of a hurry, for there will be many days when they will be better off in the cellar or cave than outside, huddled together so closely as to chill the outer brood or eggs.

My 28 colonies are in a cave 6×8 feet square. I have been down to see them but once since Jan. 1, and have just put some rubber roofing over the snow that covers the hatchway, in order to keep it from melting as long as I can. My object is to keep them as nearly dormant as possible until there is something for them to bring in.

When the snow is all gone, and fair weather comes, I shall keep my weather eye open for a cool spell, when the bees will not fly for a couple of days; then I'll open the doors about sundown and leave them for two hours to cool off. Then, after placing a wet cloth over the entrance, I will gently carry them out and place them on their summer stands.

By way of assistance to them in their housecleaning, I will (on the first warm day) place them on fresh clean bottom-boards. This, I think, is important, as it saves a lot of hard work removing the dead bees and cappings that have accumulated during the winter.

As this stuff is more or less damp, it is a sanitary precaution to remove it as soon as possible. At the same time I will remove the empty or moldy combs and shove the remaining combs and followers to the left side of the hive. My followers are always on the right side, as my hives face the south. I think that they afford some protection against the cold west winds of spring, and, after, from the hot afternoon sun.

Brooklyn, Iowa.

Heads of Grain from Different Fields

Solid vs. Pneumatic Tires ; Friction Transmission

I should be pleased to know the respective advantages of solid tires and pneumatic tires, taking into consideration the question of cost. Is there any particular advantage in the friction transmission? For utility, would something like the International auto wagon be better than an ordinary car with trailer?

Wesley, Ont.

GEORGE WOOD.

[On practically all of the motor trucks and wagons used and manufactured in this country, solid tires have been found to give the best satisfaction. They are not adapted, however, to speeds above fifteen miles an hour; but since this is plenty fast enough for a machine carrying a load, it is evident that the high wheels and solid tires are much to be preferred to the pneumatics for the light trucks and wagons used by beekeepers. The hard tires will ordinarily wear about two years, although the character of the road has a great deal to do with the question, since rough stony roads grind away the rubber much faster than clay, sand, or even gravel roads. Pneumatic tires, if used on a truck, would not last as long as this. They would cost much more in the first place; they would require expensive repairs continually, and there would be many delays when time is worth money. As the commercial vehicles are used more and more by all classes of business men instead of horse-drawn delivery-wagons, etc., blacksmiths over the country will gradually put in a machine for re-tiring the wheels. A great many blacksmiths (in the larger towns at least) are already equipped for putting rubber tires on buggy-wheels.

Of all the different kinds of transmission or devices for changing speed, the friction transmission is the simplest, the cheapest to maintain, the most trouble-proof, and the easiest to operate. Among the disadvantages may be mentioned the fact that the friction transmission, if properly designed, costs more than a sliding gear, for instance, and it is slightly less efficient on low speeds especially. However, this loss of efficiency is far less than many imagine, which fact is shown by the increasing popularity of this form of drive for light trucks and commercial vehicles of all kinds. Personally we are quite in favor of the friction transmission.

Regarding the use of a trailer, we will say that, for some reason or other, this has not proven very practical. We noticed an account not long ago of a piano dealer, however, who was moving pianos very successfully on a trailer, which may possibly indicate that one reason why trailers are not used more is that there has been so little experimenting done along this line. Mr. F. B. Cavanagh, of Hebron, Ind., uses a two-wheel trailer, as illustrated on p. 500 of the August 15th issue, 1911. His trailer, however, is pretty hard on the rear tires of the auto; for, in addition to standing the wear and tear of attraction, they have to hold the weight of a good share of the load. It may be, moreover, that the bearings, which are not designed for such a heavy load, will give out. A four-wheel trailer would overcome this objection; but at the same time such an arrangement is rather hard to manage in turning corners, etc. We presume that the most economical way is to use a commercial vehicle designed for carrying a load, in order to avoid these complications.—Ed.]

500 lbs. of Comb Honey Carried in a Ford

I did not purchase my automobile for the express purpose of using it in connection with the apiary, but more as a pleasure vehicle for the family; but I find there are many uses to which it can be profitably applied in connection with the apiary, especially in marketing the crop, if sold to consumers or grocers.

My machine is a five-passenger Ford; and, although designed especially for a pleasure car, I have marketed all my honey the past two seasons with the best of satisfaction to myself and to my customers.

I can carry four or five hundred pounds of comb honey each trip, and the honey is delivered in the best condition, crates all clean and fresh, and not a broken section at any time to mar the appearance and sale. The beekeeper does all the handling himself, and handles it as it should be, thus insur-

ing first-class delivery. Besides, it is cheaper than freight or express, all things considered. I have also transported bees, hives, queens, and supplies to some extent; and I find that an automobile adapted to the purpose can be made a useful and profitable adjunct to all kinds of apian transportation, and a great source of enjoyment in making business and pleasure trips.

Athens, O.

J. C. ATKINSON.

Moving Bees in Record Time with a Buick Truck

On a November morning, with the mercury at 40 degrees Fahrenheit, with twenty handy screens to close hives, and twines ready cut to wrap each end of a hive, a start was made at 6:30 from the city for bee-moving four miles in the country. The necessary work of closing hives and tying was carefully done, 20 hives loaded, and moved three miles to a purchaser's location, and the return made to the city, ready for our delivery work at the grocery, at 8:45. What about this for a good record with a two-ton Buick truck?

Thirty-four hives of bees at a load were hauled one July night a distance of six miles in this same auto truck from one side of our city to new pastures. These bees were all prepared at sundown; loaded, moved, and placed, and the return home was made by 12:30 P.M. We have solid tires. The pneumatic are easier.

I have a 1912 Cole car; one brother has a Reo; another brother an E. M. F., and my father wants a Cadillac.

Evansville, Ind.

W. W. VICKERY.

Is the Friction Transmission Reliable?

I am thinking of buying an automobile the coming season, and I should like to get your opinion of the Cartercar. Do you think the friction transmission and chain drive are what the manufacturers claim? I want a machine that I can depend upon to go through sand and mud, and over the hills. I should like the best there is in a medium-priced car. There are no Cartercars around here, and I have never seen one; but I have their literature, and am very favorably impressed by it; but I should like to learn from good good authority whether they are thoroughly reliable.

Scottville, Mich.

L. D. ALLEN.

[We have driven a Cartercar for nearly three years, and so have had a good opportunity to judge of the merits of this particular car. It is not as low in price as some of the other machines of the same size, but we do not believe there is another car on the market so economical in upkeep. It is almost impossible to abuse the machine; and it will stand hard continuous pulling with the friction-wheel set close to the center of the disk—low-speed position—without wearing out any thing nor doing any damage whatever. Furthermore, the changes in speed may be made at random, from low to high or high to low, regardless of engine speed, and while the car is running in either direction. We have no hesitation in recommending it as the easiest car to drive of any that have come to our notice.—Ed.]

The Ford Contemplated

I want an automobile that I can run every day to my outyards, and one on which the upkeep cost is not too high. Do you think that the Ford could be run a good deal cheaper than the 30 h. p. class, E. M. F., Buick, or Overland? Do you think the Flanders is a better car than the Ford? The Ford was used here last summer; but it has not been here long enough for me to judge much about it. I run five outyards, and want a car that will be the least trouble to look after, and the cheapest to keep up. It must also be rather small to be handled around the yards easily.

Spanish Fork, Utah.

THOMAS J. STANTON.

[There are several Ford automobiles in this vicinity; and our opinion is that, for a light pleasure car, this is the best proposition on the market, for the money. The E. M. F., Buick, Overland, etc., are all much heavier cars, and consequently larger and more expensive tires are needed. Some have thought the Ford too light for strength; but those around here seem to be giving very little trouble.

There is really little risk in buying a machine that has been on the market for a year or two, from any of the old companies that have been in the business long enough to understand the construction of a car. We would not buy a new model just brought out by any concern, for it takes at least a year for the mistakes in design in a new machine to be corrected by the tests made in service.—ED.]

Cement Track for the Auto Instead of a Driveway

My occupation is that of deputy examiner (deputy collector and inspector). Our examinations being made at the factories, I bought a third-hand auto to enable me to get to the different points, which are sometimes four miles apart, in a short space of time. I find that I save about two hours a day in this way.

I used to have a good deal of trouble in the spring from the auto wheels cutting ruts in the lawn nearly a foot deep as it came up the steep grade in front. So I dug two parallel ditches, 56 in. apart from center to center, and put in cement tracks 8 in. wide and 6 deep, with a half-round groove in each, 4 in. wide and 2 deep. I laid a galvanized wire cable in the center of each track to reinforce the cement. This arrangement fully meets my expectations; for when the wheels are once in the groove it would be hard to get them out, even if I desired to. When running in I can hit the grooves every time at a ten-mile speed; and in backing out I merely have to be careful to get the hind wheels started right, and then the front wheels are almost sure to enter the grooves themselves. As soon as all four wheels are on the track I can let go of the steering wheel, as the grooves attend to the guiding.

Bridgeport, Ct. S. J. GRIFFIN.

Mitchell Runs 50,000 Miles

In June, 1909, I purchased a 20-25 h. p. Mitchell car, and it has been in constant use since then. In all, it ran over 50,000 miles, and is still in good repair. My expense for extras has been less than \$100, while my tire expense has been about what any other car would average under the same circumstances. I had never had any experience with an auto or other machinery; but I have been able to handle my car to my entire satisfaction. I would not be without a car, and am aiming to purchase another Mitchell this spring, as they will do the work under all circumstances.

Belgrade, Mont. J. M. GRAYBEAL, M. D.

International Auto Wagon a Time-saver

Last spring I bought an International auto wagon which I have been using since, and find it perfectly satisfactory. As a time and labor saver alone the machine is worth its cost; and, besides, I never have to worry about bees making it break loose and run away.

To-day a hunter brought in the report that one of my houses at an outyard $3\frac{1}{2}$ miles away was open. In forty minutes afterward I had been out, looked after things, returned, and put my car up. How does that compare with harnessing a team?

Rocky Ford, Col. A. S. PARSON.

Auto-repair Man Advises the Cartercar

At present I have about 150 colonies of bees, so I have a great deal of time in the fall and spring to work at my trade—that of repairing automobiles.

Just recently I examined the driving chain in a Cartercar which had been driven 25,000 miles, and neither the chain nor the sprockets show any appreciable wear. Nearly all cars with sliding-gear transmissions and driving pinions must have several replacements before they have been driven that far.

The Cartercar costs more money than some of the others; but it is the cheapest one to buy in the long run. It has one of the best engines that can be built, which gives ample power to handle the car with ease as slow or as fast as one wishes to go. The ignition is all right, and will require practically no attention. I have seen these cars driven 2500 miles without having the engine touched.

This car has the friction transmission. It would be impossible to produce any thing simpler, more efficient, or more economical in the way of automobile transmission. There are any number of speeds which are brought into use with the greatest simplicity. This construction does away with

universal joints, driving shaft, the inefficient troublesome cone clutch, and also the possibility of spinning the tires on the ground with the car standing still. This increases the service of the tires a great deal over those on cars with cone clutch and geared transmission. There are no gears in this friction transmission, and no beveled driving pinion or gears, which are expensive to replace, and require a great deal of attention.

Richmond, Ky.

CLIFTON WEAVER.

The Brush as a Hill-climber

When looking for a serviceable auto for apary work, do not overlook the Brush. It is a powerful little 10 h. p. machine—a regular little burro for grade-climbing, and as reliable as any in the market.

Redlands, Cal.

P. C. CHADWICK.

Forty h. p. Overland Run 25,000 Miles Among Queen-rearing Yards

Two years ago I invested in the best touring car the Overland people put out—a 40 h. p. machine costing \$1725 delivered in Beeville. So constantly have I used this car in the management of my out-apiaries that it has become a positive necessity as well as a decided luxury; and to do without it would surely handicap me in my business, my 15 yards numbering about 1200 colonies, scattered in a circuit of 85 miles—the nearest being 5 miles and the furthest 25 miles from home. This made it imperative for me, if I wished to keep pace with the times and the bees, to adopt a faster method than the wagon and horse. By the old way it took one week to get around and see the bees; but now I can see them all in one day if I wish. The old way required two teams and a buggy and horse. Since getting the auto, one team can do all the hauling, and the horse and buggy are not needed.

As to how both time and money can be saved by the use of the auto I will cite one instance. In last season's work, when the first fall rains fell, there were six yards that I knew needed about two hours of work at each. To work them in the old way would have required three days with wagon and team—a day to go out, and the best part of another to return. With the auto we worked the six yards, wife and I leaving home at noon on Tuesday, returning by the queen yard, caging and mailing 42 queens, and were at home at 6 P.M. Wednesday.

We never abuse the auto by making a dray of it, although we sometimes load a thousand pounds of honey in bare cans in the rear, carefully placing and packing to avoid chafing the inside finish of the car.

Unlike a wagon and team, we can run right into the yard, among the bees, with no fear of runaways or smashups. We have found the auto a great convenience in moving heavy loads of honey right out of the beeyard to a safe distance so the team could be attached. I believe I could pull a 2000-pound load on a trailer all over this country; but, unlike our friend Cavanaugh, whose pictured trailer he gave us last season, I have been too much afraid injury would result to my car by pulling a trailer, as it did to his.

Now as to the expense, which should be discussed and thoroughly understood before investing in an auto; for we can not operate a car without expense, any more than we can operate a team and wagon without cost. The first cost of a car is the first to be considered; next, its upkeep. If my car did no more mileage than my team, the cost of upkeep would be less than that of a wagon and team.

I have had a few minor breaks. Three transmission cases were broken in the first 3000 miles. These were replaced by the company free of charge. Later, after 18 months' use, an axle was broken. There have been also a few smaller troubles, all of which were easily adjusted. Gasoline and lubrication have been the greatest expense, as with heavy cars they average about a cent per mile. I have run some 25,000 miles, and to all appearances my car is as good as new, and I can not see why it should not run a hundred thousand miles. A new set of inner and outer tubes have been purchased only once, at a cost of \$174.

Beeville, Texas.

W. H. LAWS.

Pyrox fills the barrel with the apples that used to be on top. Write BOWKER INSECTICIDE CO., Boston, for book.

Our Homes

A. I. Root.

Jesus answered and said unto her, If thou knewest the gift of God, and who it is that saith to thee, Give me to drink, thou wouldest have asked of him, and he would have given thee living water. The woman saith unto him, Sir, thou hast nothing to draw with, and the well is deep: from whence then hast thou that living water? Art thou greater than our father Jacob, which gave us the well, and drank thereof himself, and his sons, and his cattle? Jesus answered and said unto her, Every one that drinketh of this water shall thirst again: but whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall become in him a well of water springing up unto eternal life.—JOHN 4: 10-14.

Ever since childhood I have been more or less interested in springs, and springs of "living water." Near my childhood home there were many springs, and in my play I had more or less to do with them. I built dams, had little sawmills, and made tubes of hollow reeds for hydraulic experiments. Since then our readers will remember I have written up springs more or less; in fact, I have visited some of the finest and largest springs in the world. Just of late I have been interested in making artificial springs, and this is what I want to tell you about to-day. We have artesian wells in our vicinity, it is true; but the artesian water is not as good as water from a spring. We also had quite a little expense, as we recently put up a windmill with a ten-barrel tank elevated twenty feet. This windmill, of course, gives us running water until the tank is empty; but where we open a half-inch pipe, a ten-barrel tank full lasts only a few hours. In making our garden, I very soon discovered that, when we have excessive rains, such as we have had this past winter, it is extremely important that our ground be underdrained, and I finally purchased a thousand tiles, shipped from Georgia, for this purpose. Right at the head of our garden, at the highest ground, we commenced our line of tiles and went down (to get good underdrainage) between four and five feet. Then the tiles were carried along with just as little fall as possible and have a running stream. After carrying them down three or four hundred feet we found the ground so porous that the water we had secured at the head was lost in the porous soil. In order to obviate this we ran the tile back to where there was a pretty good stream running into a half-barrel or keg. This half-barrel had a wire-cloth partition across the middle in order to prevent sediment from going into the iron pipes that are attached to the barrel. We used old iron pipe, second-hand, that cost but little, in place of the tiles; because when the water once gets into the iron pipe it is secure and can not soak into the loose ground nor evaporate. Well, in the fall we were greatly pleased to find that this half-inch iron pipe gave a full half-inch stream. This stream was allowed to run into a tank of water in the duck yard in the lower part of the garden.

I now want to digress a little to tell you that down here in Florida we have an abundance of rats. They are not the same kind of rats that we have in the North, but they are bad enough. Where we feed chickens by scattering the grain on the ground, the rats will come in and do a thriving business. Well, I have explained to you already that we head off the rats in our poultry-houses by keeping all of our grain and feed in galvanized iron tubs, and these tubs are suspended from the ceiling by three wires. Now, we can not do this very well in case of the ducks, because they can not climb up and get the feed out of the tubs; but I have got on to a plan which seems to answer about as well. Our corn and wheat, or what else is fed to the ducks, is put into the bottom of these pans where the running water flows in. The ducks, of course, like it all the better for being under water, and so far the rats have not discovered any plan whereby they can get the grain at the bottom of the pan. Now, with ducks we want running water; because if the water is not changed constantly, as any one who has had experience with ducks will recognize, it soon gets very muddy and foul; in fact, a water-pond for ducks that has not a running stream to keep it supplied and to keep the water moving will soon become any thing but a pleasant sight or smell.

Well, this stream of running water has given me a great deal of pleasure every time I have passed it. There it runs, day and night, week days and Sundays. There is no letup nor stoppage—at least there has been none so far, and we are now in the middle of quite a severe drouth, yet my artificial spring continues to work just as it did at first. The point I am getting at is this: Almost any of you can have a spring of running water on your premises if you have an acre of ground, or, better still, a few acres. Rising ground, of course, is an advantage, because then you can get the necessary fall without any great expense.

Just a word in regard to a suitable place for locating these artificial springs. Some of our older readers may remember that some years ago I made a visit to Father Cole, as he was called—the man who put out the book entitled "Making the Water Captive." Well, Father Cole told me that he had discovered that most springs are at the bottom of a ravine with a surface-water drainage at the upper part. If you go out in the woods or in the fields, and find a place where the water has been running when there are abundant rains you will find, by digging down, that there is surface-water running at almost any season of the year. The best place in the world to do tilting for an artificial spring is in one of these surface-drainage spots. You may object at the expense of the tile; but if you are doing any thing in the way of making garden or

raising crops you will find that the tile will be an exceedingly good investment without considering the worth of this running spring. What is prettier or more exhilarating than to see a stream of water that continues to give pure, clean, health-giving water? The water in our spring which I have described is so soft that it washes with soap just as well as rain water. When visitors are around our premises they always utter an exclamation of surprise and delight when they see the corn for the ducks down at the bottom of that pan of clean sparkling water.

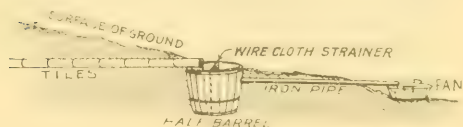
I have had great pleasure in raising ducks, as I have told you before. I have had excellent success; have scarcely lost one unless by some accident, and I think one great reason is that they have running water all the while—all they can consume. When they get to a sufficient age I give them this same running water to bathe, splash, and play in. Now, there may be something in animated nature more pleasing and more thrilling than young ducks playing in beautiful clean running water; but if so I have not found it. Whenever I feel dull, or when inclined to feel overburdened with care, nothing rests me like going out and looking at these young ducklings in their play. By the way, are there any of God's creatures as joyous and full of fun, and as happy, as a lot of ducklings? Just now I have a Leghorn hen leading about a flock of twenty-nine taken out of an incubator. They are just three days old to-day, and I wish the readers of GLEANINGS could get a glimpse of those twenty-nine ducklings as they rejoice and give thanks to God for the little lives he has given them—at least so I understand it when they flop their wings and start off full of exhilaration and thanksgiving for life. Just after dinner to-day, when I had first put them out on the grassy plot where they stay, and where they had been playing in the dropping water, the sun came out, and all at once they started on a sort of jubilee. I called it their Indian waltz, and called Mrs. Root in a hurry to come out and see them perform.

If you have ground on your premises that you find higher than your dwellings, of course you can have this water piped into the house. In this case you would, of course, be careful to have your tile laid in ground that is not near to the barn or stables or other outbuildings. None but those who have tried it can realize what a blessing it is to have a stream of water running right into the kitchen. Even if it does cost some money, how can the money be better invested? If you have a sufficient stream or vein of water, even if it should be lower than your dwelling, by use of a hydraulic ram you can even then have a

stream of water running into your dwelling and to your barn and stable. Even a small stream, where it runs continuously day and night, week in and week out, will afford quite a quantity of water, as you can readily determine by figuring it up. The diagram will give a pretty clear idea of our spring.

Our older readers may remember that the fourth chapter of John is the one that I learned to read in Spanish when I was on the island of Cuba. Ever since that time this chapter has had a special attraction to me; and when I saw that beautiful stream of pure water running into that tank, and overflowing, giving life and enjoyment to my ducks, I kept thinking of this passage, especially of the living water. Just now in our nation there are a great number of people who are interested in the matter of drink. There are those who drink that which destroys both body and soul; and, worse still, who are engaged in manufacturing and recommending it, and demanding laws so that they can furnish it to their fellow-men. Do you think those who are interested in this sort of drink are the ones who are going to inherit eternal life, as mentioned in our text? What is to be the outcome of the great inventions and discoveries that are now coming so thick and fast? We have wireless telegraphy, the dictaphone (that I am using now while I am talking to you), the flying-machine that the Wright brothers are still pushing further and further, that is to be the great excitement of the whole wide world in just a few weeks more, and other discoveries that are coming thick and fast. The question naturally arises, "What about the future, and what is coming next?" Those of you who are getting old, like myself—say those who have passed the period of threescore years and ten, I wonder how many of you are thinking of what will be going on in this world of ours after we are dead and gone. Shall we know of earthly things after we have passed this brief stage of life? Our text tells us that we shall. But does it seem likely that those who are spending their lives for self and selfish purposes, with no thought of the future, with no thought about humanity, nor care nor regard for God or his creatures, shall inherit eternal life, and know what is going on, and what the outcome shall be of this world of ours? What did the dear Savior mean when he said, "The water that I shall give shall be a well of water springing up into eternal life," or into everlasting life? What shall we do, as the woman said, to have this water that we thirst not?

"Living water," as I understand it, is accepting Christ Jesus as our Lord and Savior, obeying his commands, and following in his footsteps so far as we can. If we commence to study his life here on earth, and the words that he spoke, we shall very soon have it plain before us what it is to be a follower of the Lord Jesus Christ. Thus there is the promise that they shall have eternal life, and this spring of water that is to be given by this one who has decided to be a



follower of Christ is like the little spring I have been telling you about—the little stream of pure clear water that runs on day and night, week in and week out, for ever and for ever. This stream given by any Christian or follower of Christ is to be a life devoted to the benefit of its fellow-men in lending a helping hand, even as Christ Jesus himself lends a helping hand to bless and help and alleviate the ills of humanity.

Pure water is life and health, not only to humanity but to every living thing. I have spoken before of the duck. Perhaps no other animal cares for water, or wants it so constantly, as the little ducks. Water seems almost to them like air. They must have it always before them. They want it pure and fresh and sweet. They can not take their food without having constant access to water. Just to-day we have been moving the pen of little ducks so that they can go into the canal I have already spoken of, and enjoy themselves in the running water. They are separated by a fence from the matured ducks, because it would not do to let them get together. The feedpan is arranged close to the water so that, when they come to drink, they can take a bite at their feed. In order to do their best, I manage to have their feed close to them so they can help themselves whenever they feel prompted by hunger.

Now, this spring of living water that is promised to Christians is always constantly by you. It is not only an unceasing stream, but the amount is without limit. There is no limit to the work one may do to help his fellow-man if he is prompted by the love of Christ Jesus in his heart. And to such, and such only, is promised everlasting life. This spring of living water is to humanity what the running water is to the little ducks. It is, in fact, life itself.

Let me illustrate what I have been telling you by a little sketch of the last few days. I have mentioned the wicked boys who have been taking my ducks one after another on God's holy sabbath day, until I almost felt compelled to give up my plan of growing ducks in the water. However, after the boys were arrested, and one of them put in jail, I thought my troubles were over; but one morning, after a beautiful moonlight night, one of the older ones, fully half grown, was missing. Besides that, three more were gone out of the next size that came out of the incubator. Perhaps no one but those who have lost poultry in this way can understand the feeling of sadness that comes when, day after day, more poultry is missing. Of course, it is not the loss of the fowls altogether, but the knowledge that vicious and wicked people are becoming encouraged. It is probably boys or young men who are engaged in this kind of pilfering; and if the matter is allowed to go on unrebuked or unpunished it is encouraging a school of crime. Well, each time I lost any ducks I had a feeling of sadness or discouragement that took several days to wear off. This last time, when four were taken in one

single night, I felt not only that I must give it up, but that I was losing faith in the character of the good people in our neighborhood, and (I fear) to some extent losing faith in humanity. Of course, I prayed over the matter; in fact, I prayed more earnestly than I had for some time in regard to it. Finally I went off by myself and asked the dear Savior to give me peace of mind, and happiness and enjoyment, notwithstanding these discouragements, and begged for wisdom and understanding in taking care of the matter. Then I went on about my work, and finally succeeded in forgetting for the time being all about my troubles. All at once, when I was not thinking about it at all, and the matter had passed from my mind, a still small voice seemed to speak to me, almost as plain as words, "Lay not up for yourselves treasures on earth, where moth and rust doth corrupt, and where thieves break through and steal." Then it dawned on me that I had been giving too much thought, and making my happiness too much dependent upon the things of this world. I thank the Lord for this recent answer to my prayer; and, a little after, in talking with my neighbor, our good friend Mr. Rood, about it, he said he felt certain that no boys nor anybody else disturbed my ducks. After asking several questions about it he decided that some of the Florida owls that are out, especially during bright moonlight nights, were to blame. He was all the more sure of this when I told him that it was the first time I had let the smaller flock of ducks stay outdoors over night during the very warm weather we had. The older ones, that are fully half grown, had been outside some time. I asked him if it was possible an owl could take a duck as large as a good-sized chicken. He said there was no question about it. After shutting up all the young ducks we have had no more losses of this kind. My good friend Mr. Abbott also told me that whenever they had very bright moonlight nights (and I believe that here in Florida we have a brighter moonlight than anywhere else I have ever been) they were almost sure to hear a commotion among his poultry. Mrs. Root reminds me that there was a loud cackling among our chickens that same night. I didn't hear them as she did, on account of my deafness. Of course, the answer to my prayer did not bring back my ducks nor the pay for them, but it brought a feeling of relief to find it was pretty certain that it was owls and not the dear boys who "are of more value than many sparrows."

The *Sunday School Times*, in a recent editorial, said that we as Christians may thank God for difficulties, especially the difficulties that send us to the Lord in prayer. I must confess that much of my praying and most of my most earnest prayers are generally at the time when I get into trouble.

Now, this living water that Jesus furnishes to his followers is always on hand. It is always running, and it is always ready for our wants. He is always ready to hear our

prayers, and listens to our troubles and gives us relief, and relief in a way that will benefit and bless our fellow-men and not do them harm.

I have recently been reading in the papers the contest we are having in Ohio in regard to the liquor business. I have been amazed to see the way in which the daily papers treat the matter. I have such papers from different parts of our nation in our Southern home, and I am interested in noting the way in which they make reports. A great part of them seem to report the progress of temperance and intemperance as they would report the progress of the different political parties. Let us look at it a minute. The Anti-saloon League, in which I am and always will be interested, works for the good of humanity in spending its money and its means in benefiting and lending a helping hand to children and mothers, and all who need that kind of help. The competing parties in the contest are the liquor men, who have no interest at stake except the interest of making money—nothing to urge in the way of an uplift to humanity. The strongest argument they can bring to bear is that, if the liquor traffic is outlawed, hundreds and perhaps thousands will be thrown out of employment—that is, employment in the breweries and the distilleries. In view of all this I am positively amazed to think that so many counties in Ohio have, after having tried prohibition for a term of two or three years, gone back and voted the county "wet." It seems incredible that it can be a fair and honest vote. It could not be if the wives and mothers had a hand in deciding the matter. May God grant that they will soon have a hand. What for? That "whosoever drinketh of the water that I shall give him shall never thirst."

The *Chicago Advance* recently had an editorial in regard to melancholia*, and they seemed to treat it as one of the unpreventable and incurable diseases. I was surprised that they did not suggest that the one afflicted with melancholia should get busy (to use the slang expression) in working for humanity and spreading the Gospel of Jesus Christ in furnishing to humanity its living water that always refreshes and benefits and that does no harm. They ended their editorial by recommending that the best relief for melancholia is to get busy and keep busy, and this I can most heartily endorse. The past winter has been one of the busiest I ever passed in my life. During the past few days it seemed as though I had not a single minute, and sometimes hardly a second, to spare or to waste.

* My good friend, it is *sin* to indulge in melancholia—a grievous sin. It is an insult to the great loving Father who gave you a human life to live. He who drinks of that "life-giving fountain" mentioned in our text will find himself too busy in passing it on to a famishing and thirsting world to have time for such thoughts. It is the outcome of selfish indolence. I know, for I have *been there*. Say, "Get thee behind me, Satan," and then "get busy." Melancholia is the "stepping-stone" to the terrible "suicide mania."

SWEET CLOVER, AN UP-TO-DATE REPORT.

A field of forty acres on our Kentucky farm has been sown to sweet clover, the past season being the second after sowing. During the blossoming period, which lasted from the middle of June until the middle of August, the field was covered with honeybees.

Sweet clover is a legume. Practically the same bacteria live on its roots that live on the plant-roots of alfalfa. Some people will say alfalfa is so much better than sweet clover, why not plant it? How do they know if they have never planted sweet clover? We first used sweet clover as an inoculator for alfalfa. The bacteria developed much faster in the soil sown to sweet clover than that sown to alfalfa. I have noticed that the plants of sweet clover do not depend on artificial inoculation or fertilization as does the alfalfa-plant. Another advantage is that seeding may be later. The seeding of sweet clover may occur with us any time after the first of October up until the first of December. We have the entire season for the maturing of other crops before having to remove them for preparing the land for seeding.

MAKING SWEET CLOVER GROW.

On land where the following crops are grown—corn, tobacco, potatoes, or tomatoes—all that is required in preparing the soil for seeding is a deep disking with a sharp disk harrow, and a complete working with the float or plank drag. This levels and firms the soil without making it too compact; and when the seed is sown and lightly harrowed in with a sharp-toothed drag harrow that leaves small ridges and furrows, the soil crumbles around the small plants during the winter and early spring, which starts them off before other vegetation has made its appearance.

To sow as a soil-restorer, on old fields that are badly gullied, there is no preparation required. The seed is sown broadcast, about 25 pounds per acre, any time during the fall, winter, or spring.

The seed of sweet clover should be sown thinly on old and tired fields, then the stalks will be large and branching, bearing much seed and quickly re-seeding the field. The brushy stalks may be cut and placed in the small washes, which they stop by catching the silt and small trash that would otherwise be washed away and lost.

A description of the sweet-clover roots will show that they are a high-class fertilizer. Unlike the roots of other leguminous plants, those of sweet clover are somewhat fleshy and not fibrous. During the first year the roots reach far into the ground and draw up from considerable depth an abundance of plant-food, which they store up for the second year's growth. On the death of the plant, at the close of the second year, the fleshy roots decay more rapidly than the fibrous roots, and their nitrogen becomes more readily available for other crops.

PREPARES THE LAND FOR ALFALFA.

We think sweet clover is one of the finest things in use to prepare the land for alfalfa. Sow to sweet clover for one year; break the land, turning under the young growth the second spring about the first of May, and cultivate until ready to seed to alfalfa. The germs of bacteria will increase rapidly, and the soil will be filled so full that the alfalfa-plants will grow right off and make two or more cuttings the first year after sowing in the early fall. As a soiling crop, it is right up to the front. Combined with bluegrass, it makes one of the finest pastures known to stockmen. Unlike alfalfa, it improves by being pastured; yet again, like alfalfa, the stock have to become accustomed to it before they will eat it with a relish. But when once they have learned to eat it they prefer it to all other grasses.

As a pasture for hogs, the chief difficulty lies in the fact that the hogs want the roots as well as the tops. They eat the grass readily from the first, seeming to like its peculiar flavor, and are also fond of the hay, eating it more readily than that of red clover. One of its many good qualities is that cattle may be fed exclusively on sweet clover, and under the conditions most favorable to bloating without any danger from this trouble. The principle which gives it its bitter taste effectively prevents the fermentation that results in bloating.

I believe that every farmer who owns hill land not suitable for alfalfa should give sweet clover a trial. Then, after a few years, when sweet clover has made good, alfalfa will be the next in order.—*Farm and Fireside.* J. W. GRIFFIN.

Gleanings in Bee Culture

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VOL. XL

APRIL 15, 1912

NO. 8

Editorial

NEXT issue will be largely devoted to the subject of making increase and strengthening weak nuclei. This discussion will be especially seasonable this spring.

A CORRECTION.

IN our editorial notice of the new bee journal, the South African *Bee-keepers' Journal*, in our December 15th issue, we gave the address as Johannesburg, Natal, S. Africa, whereas Johannesburg is in the Transvaal. The initials of the editor are also "G. S." instead of "G. F." Oettle as given.

NEW SUBSCRIPTIONS ROLLING IN.

IN spite of the severe winter losses, new subscriptions are rolling in at a faster rate at this time of the year than we have ever known before except once. The last month shows a gain of nearly 600 new subscribers. It looks as if the winter just passed had not chilled the ardor of a large number of our beekeeping friends, for renewals are coming in at the same steady healthy rate.

THE DEATH OF NEW JERSEY'S FOUL-BROOD INSPECTOR

WE are sorry to announce the death of Prof. John B. Smith, State Entomologist and Foul-brood Inspector of New Jersey. Prof. Smith worked hard for foul-brood legislation in his State, and, with the help of others, finally succeeded in the enactment of an excellent foul-brood law. There was great need of it. He was a good entomologist, and did splendid work in eradicating bee diseases. New Jersey can ill afford its loss. His successor possibly may not be appointed for some time.

HONEY PROSPECTS FOR THE COMING YEAR.

REPORTS thus far received, in spite of the severe winter losses in some localities, are optimistic, forecasting an old-fashioned honey-year. While it is true there will be a light force of bees in some localities to gather the honey, it seems to be generally felt that this is going to be a clover year in the East. A large amount of snow has cov-

ered almost the entire clover belt for the entire winter. Such a condition, it is felt, means clover and honey. There are a few localities that report that last fall's drouth killed clover out entirely; but these are few and scattering.

In the irrigated regions of the West there will be the usual run of alfalfa honey. Conditions in California, so far as the sage crop is concerned, look much better than they did a month ago; but it is feared that the rains came too late to do any thing better than to make a light yield.

EXTRAVAGANT ADVERTISING OF FIVE-BANDED BEES.

IN our last issue, page 189, in Straws, Geo. M. Steele, of Philadelphia, desired to have Dr. Miller retract his statement to the effect that there were not a dozen colonies in the United States showing *all* five-banded, for he said he could disprove the statement with the bees. Dr. Miller very properly replied by saying that he did not make the statement attributed to him and referred him to the editor. As we were in Florida when the Straw appeared, it is proper for us to reply:

Mr. Steele, in a letter which he submitted to Dr. Miller, says, "I have sixty colonies that will go one better in our 95 per cent of the workers, and some five that will run golden to the tip in 100 per cent of the workers." We cheerfully retract, and offer our congratulations. But we still venture the opinion that Mr. Steele is the only breeder of goldens that can show this high percentage of yellow. If there is another, let him hold up his hand *and furnish the proof*. Mr. Steele has already done this to our satisfaction, and it is but fair that the others should do the same.

What we have particularly protested against is advertising "five-banded bees," and furnishing, after the money is paid, three and four banded bees. That is what makes trouble; for if the "ad" appeared in these columns we are asked to "arbitrate" or make the other fellow quit advertising what he has not for sale and can not furnish.

WINTER LOSSES OVER THE COUNTRY.

REPORTS are few and scattering, although it is safe to guess that the total loss will be much more severe than for many years past. In most localities where cellar or out-door wintering prevails, and the bees had sugar syrup or equally good table honey, there were practically no losses. Cellar wintering during the past winter, where the conditions so far as ventilation and humidity were right, has again demonstrated its superiority in extremely cold localities or cold weather. Bees well housed in double-walled hives on good stores have, as a general thing, wintered well. The following is a fair sample showing the value of protection:

I can inform you how my bees wintered. Home yard, chaff hives, in open, wintered perfectly; sealed, protected by building, loss 20 per cent; wintered, no loss.

Out-apiaries, yard A, single-walled, in open, loss little over 80 per cent; yard B, as above, 75 per cent. yard C, as above, 70 per cent. This is the greatest loss ever experienced. Had the bees been all packed, the results would have been better.

DECATUR, ILL., March 17.

W. S. ZERRING.

In many localities last fall the bees gathered considerable fall honey. Where this was the case some heavy losses have been reported. A queer thing about it is that bees south of the Ohio River have died as well as those north of it. The unusual cold caused them to consume more stores than usual, causing starvation and sometimes dysentery.

The greatest losses seemed to have occurred on or near a line running through the center of the following States: Iowa, Wisconsin, Illinois, Indiana, and Pennsylvania. Losses are reported in Oklahoma, Kansas, and Missouri. Fair to good wintering is being reported in Minnesota, Michigan, Canada, New York, and the New England States. In Minnesota, Michigan, Canada, and New York, where the bees have been housed in cellars or in good double-walled hives outdoors, the losses have been light.

As we said about a month ago, losses will be heaviest on the dividing line where protection of the hives is usually practiced, and where protection such as outside winter cases or double walls is seldom used. Strangely enough, losses are the lightest where it is the coldest.

WHAT TO DO WITH WEAK DWINDLING COLONIES, AND HOW TO BUILD THEM UP.

Fortunately, spring has opened up very auspiciously. Brood-rearing is starting up well, and bees everywhere will hold their own, providing a severe cold spell does not follow. No one can tell. As a general thing it does not pay to unite little weak nuclei. If the weather is unfavorable they will die whether united or left on their original stands. When united the old bees go back to the old stand. Our Mr. Mell Pritchard makes the suggestion that it would not be a bad idea to unite a lot of weak ones into one hive and put them in a dark cellar and keep them there for a week or ten days, and then set them out. This will give them

an opportunity to form into one colony, and at the same time lose their sense of location, and start over again.

In this issue Mr. Doolittle has an excellent article on making increase. Many of our friends who have lost heavily, and wish to make the survivors go as far as possible, can read it with profit. See page 227.

The Alexander plan of building up nuclei into strong colonies has given splendid results. As many do not have his book, or have forgotten when it was published in these columns, we give it here:

As soon as they have some uncapped brood in their hives, take them to a good strong colony; remove its cover and put a queen-excluder in its place, then set the weak one on top of the excluder and close up all entrances to the weak colony, except what they have through the excluder, down into the strong colony below. Leave them in this way together four or five weeks; then separate them and you will have two good colonies and will have saved yourself all worry about these weak colonies being robbed, chilled, or starved. When we are feeding the other colonies we usually give these a few spoonfuls of the warm syrup in a comb next their brood. This encourages them; and if there is not more than a cupful of bees they don't get much from the feeder under the strong colony. I have explained at bee conventions this way of saving these little colonies, and have received very complimentary letters afterward from prominent beekeepers, saying that this idea was worth more than \$100 to them.

WHAT TO DO WITH EXTRA QUEENS.

If any of the stronger colonies have impurely mated or undesirable queens, it will be a good time to requeen with pure blood from the united nuclei. Of course, the objection might be raised that a queen that will not raise bees that will pull through a winter like this should not take the place of a queen whose bees did stand the rigors. But it may be that the pure queen did not have the same chance that the poorly marked queen had. For example, we find that our colonies that supplied nuclei or pound packages of bees in September and October, in most cases died because they had been robbed of a very important part of their bee family. If, for example, it is necessary to go into winter quarters with three pounds of bees, and we take away one pound, we run the chances of losing the whole colony.

DEATH OF S. T. PETTIT.

MR. S. T. PETTIT, of Aylmer West, Ont., Canada, died on the 25th day of last month in his 83d year. He was the father of Morley Pettit, Provincial Apiculturist of the Apicultural Department of the Ontario Agricultural College of Canada, and also father-in-law of Mr. R. F. Holtermann, formerly editor of our Canadian Department, and now an occasional contributor to these columns.

For many years Mr. Pettit was one of the most prominent bee-keepers of Ontario. He was a man of pronounced opinions and of sterling qualities. Among other things he was the discoverer of the plan for making bees fill the outside rows of sections as well as the inside. This was done by putting perforated dividers or separators out-

side of the outside rows of sections. This made a clustering-space for the bees, approximately one inch thick between the outside of the hive and the combs themselves. The general effect of this thick wall of bees was to make the comb-building temperature the same as the interior of the super. In connection with this, Mr. Pettit used long narrow wedges between the bottom of the sides of the hive and the bottom board, so placed that the entrance would be enlarged. This would make the front end of the bottoms of the brood frames out of reach of the bees. The purpose of this was to cause the incoming fielders, laden with honey, to go to the *sides* and back end of the hive and up to the outside rows of sections, and there deposit their nectar.

Mr. Pettit was also the inventor of a special honey-strainer used during extracting. A description of this will be found in the latest edition of the A B C and X Y Z of Bee Culture.

During the time when there was some talk of feeding bees sugar syrup to produce comb honey, Mr. Pettit came out in all the bee journals, most strenuously opposing the proposition. He felt that it would be nothing more nor less than a fraud on the public; and while he admitted that conscientious beekeepers would sell such a product for only sugar honey, he felt that many others, not stating its source, would attempt to sell it for natural floral honey. Others joined with Mr. P., and the matter was soon dropped.

During the five months preceding his death Mr. Pettit was a great sufferer; but in those days, we are told, he loved to speak of his Lord and Savior.

WHY BEEKEEPERS SHOULD PRODUCE MORE COMB HONEY THIS YEAR.

We have already alluded to the fact that the markets are practically bare of fancy and No. 1 comb honey. There are some few lots of uncandied comb honey left, but that is about all. There is no lack of extracted, even though last year was the poorest on record for the production of honey. This goes to emphasize the importance of producing more comb and less extracted. But right here a caution should be entered. Nothing but the very finest of table honey should be put into sections. There are several grades of Southern honey of very fine flavor; but because they are unknown to the Northern markets that take comb honey they can not be put out in that form. About all the kinds of honey it is safe to put into sections for a Northern market can be counted on the fingers of one hand. Let us name them over. First and foremost we may put clover. This may have a little mixture of sweet clover or basswood without hurting it in the least. While the pure basswood comb honey will pass muster, it is such a scarce article now that we find it only now and then mixed in varying quantities with clover.

Next in order we put mountain sage. It is of fine flavor and does not granulate readily. We place it ahead of alfalfa because it does not candy. Alfalfa makes a fine honey for sections, excellent in flavor and body; but it has just one bad defect—its tendency to candy too rapidly. Some go so far as to say that *all* alfalfa should be extracted. We do not share this opinion, because alfalfa comb honey, if sold before the holidays, will bring enough better price than alfalfa extracted to warrant its production.

These three sources—alfalfa, clover, and sage—cover the main dependence for section honey. We may now add to this list, for certain localities, buckwheat; but buckwheat comb honey should be sold only in eastern markets, particularly round Albany, where it seems to have a good demand. Thistle honey and willowherb comb honey make a fine section honey; but the localities where they can be produced are so limited that they are scarcely known in the market.

There is some excellent Texas honey, such as huajilla (pronounced wah-heel-ya), and catelaw. These make excellent comb or chunk honey. But these honeys rarely find their way into Northern markets. Local consumption seems to take care of them; and therefore it follows that those who are located in the clover, alfalfa, and sage districts should produce as much comb honey as possible this summer. If there should be any thing like a good flow of honey this season the market is liable to be flooded with extracted.

In this connection too much importance can not be placed on the necessity of having all the sections well filled with either No. 1 or fancy. No. 2's are slow sellers, and very often it pays better to cut them out of sections entirely, pour good extracted honey over them, and sell the product in pails in the local markets.

It is equally important to use strong well-made shipping cases. They must be neither too large nor too small; should be provided with corrugated paper at the top and bottom, and it will pay in the end to use cartons. The main reason why comb honey has caused so much trouble between buyer and producer is on account of imperfect packing. It would not cost half a cent a pound to put up comb honey *right*, and the half-cent investment will bring back five cents or more per pound, and sometimes even ten cents more; because the buyer does not want broken-down comb honey at any price.

Careless and ignorant beekeepers have only themselves to blame for the state of the comb-honey business; and it is surprising how even our up-to-date producers—some of them who write for the papers—still put up their comb honey. They remind us of the economical husband in the current-date cartoons. There is a false economy and a real economy. If we put the comb-honey business back where it originally was, we must, first of all, pack it properly, not only in the car itself, but in the shipping

cases. In less than car lots carriers should always be used with a liberal amount of straw under the cases.

LIST OF QUEEN-BREEDERS WHO AGREE TO BOIL THE HONEY THEY USE IN MAK- ING QUEEN-CAGE CANDY.

PRACTICALLY all the queen-breeders in the country, except four, have agreed to boil all the honey they use in making queen-cage candy. One writes that he is in a locality where there has never been any foul brood. He even goes so far as to say that there is none in his State. "Why go to the expense of boiling?" he asks. Another one says there is no foul brood within five miles of him. The last man, and he is one of our prominent breeders, ought certainly to boil his honey, because we know that foul brood is not far away, and it may ultimately work into his yard before he knows it. We do not feel like giving the names of these breeders, as the trade might refuse to buy queens of them. We feel sure they will be glad to fall into line after we put the argument up to them a little stronger.

The fact is that two or three of the leading foul-brood inspectors of the country have had pretty good proof put before them, showing that the disease had been carried into localities through queen-cage candy; and when it is so little trouble to boil the honey, every queen-breeder should comply with this simple precaution.

The following is a list of the queen-breeders who have agreed to boil the honey used in making queen-cage candy:

Herman Ahlers, Necanicum, Oregon.
F. M. Babcock, Fredonia, N. Y.
Mrs. J. W. Bacon, Waterloo, N. Y.
H. L. Beaty, Heyburn, Idaho.
E. W. Brown, Willow Springs, Ia.
Geo. J. Brown, Tustin, Cal.
H. C. Clemons, Boyd, Ky.
Benj. B. Davis, Springhill, Tenn.
John M. Davis, Springhill, Tenn.
W. J. Forehand, Fort Deposit, Ala.
N. E. France & Son, Platteville, Wis.
D. T. Gaster, Randleman, N. C.
John H. Gibbs, Berlin, Md.
Jos. Gray, Wasco, Cal.
J. E. Hand, Birmingham, Ohio.
Geo. B. Howe, Rock River, N. Y.
S. J. Maltby, College Point, N. Y.
J. P. Moore, Morgan, Ky.
H. G. Quirin, Bellevue, O.
G. H. Rea, Reynoldsville, Pa.
L. H. Robey, Worthington, W. Va.
The A. I. Root Co., Medina, O.
E. A. Simmons, Greenville, Ala.
P. G. Snyder, Swarthmore, Pa.

We have heard from two or three other queen-breeders who say they have never had any foul brood in their locality. One said that there had never been any in his State; but the fact is, these men can never determine absolutely whether their honey is free of infection or not. We have known of cases where European foul brood got a pretty good headway in a queen-breeder's yard before he knew it. Now, this man had been sending out presumably healthy queens in cages having candy made with honey from that same yard. European foul brood does not manifest itself quite so strongly as the American type. Then, again, American foul brood may exist in a hive of

strong vigorous Italians a couple of years before the owner knows it. There will be only here and there an occasional cell. We remember in particular one case of looking over a man's bees. He very confidently asserted that there had never been any foul brood in his locality. When we opened one hive we thought we detected the familiar odor of foul brood. On applying the nose a little closer, we found, sure enough, a faint odor of what we felt sure was the disease. We went through that colony three different times before we actually found a cell containing diseased matter. There were no perforations; but there were just two cells that showed that the disease was present beyond a question. If we had not detected the odor we would have passed that colony as O. K.

At other times there may be perforated cells not manifesting much odor. A good deal depends on the condition of the weather. A slight breeze will carry off any odors so that they will not reach the nostrils of the inspector. We wish to say in all seriousness to our friends the queen-breeders who do not think it necessary to boil their honey, they are taking a position that is dangerous to the industry. We like the position taken by Mr. J. P. Moore, who says:

Kindly add my name to your list of queen-breeders who boil all honey used in making queen-cage candy. I fully intended to write you in reply to your editorial, but in the rush of business I forgot to do so.

I have honey that I *know* is all right; but, as you say, unless *all* queen-breeders boil the honey used in queen candy, disease is likely to be scattered in some parts of the country.

Morgan, Ky., Oct. 12.

J. P. MOORE.

There are, perhaps, some queen-breeders who scout the idea of foul brood being carried through queen-cage candy. We have talked with a number of the foul-brood inspectors during the past year, and practically every one of them agrees that the disease may be carried in that manner. The very fact that foul brood is breaking out in new localities into which no bees have been shipped, and neither combs nor brood, is somewhat significant. If any one has any doubt on this point, let him write to Mr. Geo. F. Demuth, formerly foul-brood inspector of Indiana, now of the Bureau of Entomology, Washington, or N. E. France, Platteville, Wis., who is the oldest foul-brood inspector, in respect to his years of service, in the United States.

DIRECTIONS FOR BOILING.

Some have asked for directions for boiling the honey. It depends somewhat upon the consistency of the honey, but ordinarily we add about a pint of water to the gallon and boil it for seven or eight minutes. When cool, if the honey is then thicker than it should be for making the candy, it shows that a little more water should have been added. If the honey is very thin in the first place, less is needed. At our first attempt, we did not thin the honey; and it was so waxy and scorched after the boiling that it was unfit for queen-cage candy.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

POULTRY in the United States, in 1910, according to Bureau of Census, was worth 14.79 times as much as bees. [Bees are not so far behind as one might suppose.—ED.]

"THE INCREASED honey-yield which is possible by even a reasonable amount of effort in selecting and breeding bees is little realized by the majority of us."—Arthur C. Miller, *American Bee Journal*, 50. Right you are, Arthur.

THE ORIGIN of the plan of starting queen-cells on a horizontal comb seems to be in doubt, p. 177. It may be labeled "Made in Germany." Haven't time to look it up now, but I first saw it in a German bee journal, and gave it in a *Straw* a few years ago.

F. P. CLARE, you won't mind if I revise your figures, p. 179, will you? You took the word of some one else for it that the Langstroth frame is some two square inches less than the 16×10-inch frame of Mr. Simmins. Figure it up for yourself, and you will find that the Langstroth ($17\frac{1}{2} \times 9\frac{1}{2}$) contains $160\frac{3}{4}$ square inches, a trifle more than the 160 square inches contained in the 16×10 frame!

J. L. BYER, *American Bee Journal*, p. 48, says that in Ontario the claim that Italians are more immune to foul brood than blacks refers only to European foul brood, not to American foul brood. Italians being worse at robbing than blacks, his experience is that they contract the disease oftener by robbing than the blacks. He thinks it's all "moonshine" about resisting the disease after it is once contracted. [Byer is right.—ED.]

"THE SPECIALISTS who are producing extracted honey, and are making the most money, do not average over 50 pounds to the colony."—Wesley Foster, *American Bee Journal*, 46. That's quite a bit below the general estimate; but so much the worse for the general estimate. [It depends upon what you mean by "general estimate." Our A B C and X Y Z of Bee Culture puts the average for comb honey at 35 lbs., and from 25 to 50 per cent more for extracted.—ED.]

MARCH came in like a lion and went out like a whole menagerie of lions. [It is like a lamb hereabout. This 5th day of April it is a good deal like the weather we left in Florida. The only thing we fear is that it will not last long. However, Dame Nature has been giving us a long steady cold, and we are hoping that she will now give us enough warm weather so that we can save the remnants of our colonies that did not die in winter.—ED.]

REPLYING to G. L. Tomson: H. A. King never published *The American Bee Journal*; but if I am correct he or his brother, A.

J. King, published another bee journal. I do not think the patent on the American hive was ever annulled. Rev. L. L. Langstroth claimed it was an infringement on his patent, and there was much bitterness about it. Shortly before the patent expired Mr. King came out in a statement that his conscience would not allow him to take money for it, but I never heard that he refunded money he had taken or made any reparation to Father Langstroth for infringement. [A. J. King published the *Beekeeper's Magazine* for a number of years; but H. A. King and A. J. King were associated together in the manufacture of bee supplies in the early 70's.—ED.]

WHEN I GOT through reading April 1st GLEANINGS I couldn't tell whether a two-cycle piston with an exhaust cylinder escapes the gas of the planetary system better than a $167\frac{1}{2}$ h. p. transmission or not. Any way, I sympathize with that fellow who grew twenty years older in ten years through worrying about hauling bees with horses, and I'd like to go back 20 or 30 years and begin over again with autos. [Say, doctor, you are badly mixed up in automobile nomenclature; at any rate, you do not have to know about the inside mechanism of an automobile, neither is it necessary to understand the function of the carburetor, transmission, and all such, to be able to drive the car. But it is mighty convenient to know all of these things when it takes a notion to stop ten miles from nowhere. You are not yet too old to learn. A. I. R. is driving a little auto, and it is not often when the machine "balks" that he can not make it go.—ED.]

STILL AIR at zero is less of a hardship for a colony than a gale with the temperature 30 degrees higher. Never mind about crediting that to Allen Latham, page 212. Allen won't mind if I steal his thunder. I can't fix it up in quite so good shape in my own words, and it's a truth too little recognized. That's why it may be harder to winter outdoors here than in some places a long way north of here. There are times here when hour after hour, if not day after day, we don't have air—just wind. And it's no 30 degrees above zero either. [It is true that still air, although the temperature be much colder, is not nearly as severe on bees as a warmer temperature when a gale is on. This shows the importance of suitable wind-breaks for bees wintered outdoors. There may be a gale of wind outside of the beeyard and yet the air be almost quiet inside. We have seen this time and time again at our home apiary here in Medina. The outside of the yard is surrounded by tall evergreens on the north and west, while the east and south sides are protected by factory buildings.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

That is a good point made by Louis H. Scholl, page 38, that the beekeeper who has every thing in readiness for a crop of honey can look the future bravely in the face and feel sure he will conquer.



Riding by rail recently from Washington to Detroit I saw but two yards of bees, and one of them consisted of a few old box hives. This looks as though the country were not overstocked as a rule.



Some persons hesitate to start an outyard because they have no horse; but Mr. Demuth, of the Department at Washington, told me not long ago that he had hired a horse for this purpose at an expense of not over fifteen dollars.



It is interesting and sometimes amusing, and almost always instructive, to notice how different persons look at a particular subject from different angles. For instance, Mr. Wesley Foster, page 71, Feb. 1, gives the statement of Mr. F. Rauchfuss that comb-honey markets have been developed which demand Western honey, and pay a good figure. Now, one would naturally infer that those Colorado beekeepers had worked up a special market for Western or alfalfa honey; but I was talking the other day with an extensive and very intelligent beekeeper from the middle West who claimed that this is not true, as the older States had worked up the comb-honey demand or market in the East, and the alfalfa beekeepers had just stepped in and were reaping the benefit of markets already developed. He stated further that in the past, in one or more instances, he had established a market or demand for comb honey at an expense of 25 cents a pound to begin with. If this were all, it would not be worth talking about; but he said further that those Western beekeepers were doing great injury to our Eastern markets, not because of the quantity of honey, for there is a demand for all, whether from the East or West, but by putting honey on our Eastern markets that will granulate before it is consumed, thus disgusting alike the consumer and retail dealer who had previously used only Eastern honey that granulates more slowly. To my mind there is no honey produced in quantity that compares with good alfalfa granulated honey, with all wax removed; and if a market could be developed for pure granulated alfalfa honey or for "honey butter," as some call it, I believe it would be for the mutual advantage of producer, dealer, and consumer.



Then, again, there is the wintering problem, and it is a problem of great importance.

How differently it is regarded by different beekeepers! There is my good friend, Arthur C. Miller, a very careful observer, who says, page 73, Feb. 1, that when the external temperature has been nearly level for a day or two there will be found to be a difference of only one or two degrees between the inside and outside of a hive, whether in single or double walls, and I believe he states the truth. Then there is my friend Byer, a rather small man who does some large thinking, who has found the temperature between the inside and outside of a hive to vary from twenty to nearly fifty degrees, and I believe his statements equally true. Whence comes this great difference? In wintering bees in the extreme North there is always one major problem to be solved: How shall we get rid of the moisture generated by the bees, and mingled with the air and heat of the hive, and retain the heat produced by the bees? If we wished to get rid of both heat and moisture, or retain both, it would be simple indeed; but the heat must be retained and the moisture thrown off. Friend Miller goes at it one way and Byer another. Miller would ventilate his hive freely, giving about nine square inches of opening to each cubic foot of space inside his hive, with the result, as he says, of but one or two degrees difference between inside and outside temperatures. And it seems reasonable that it should be so. If we were to ventilate our dwellinghouses in the same proportion, a room 15 feet square and 9 feet high would require an opening to the outside equivalent to six good-sized windows with the sash out. Presumably the temperature would be but one or two degrees warmer inside than outside, whether the walls were single or double. It might dispel the great white plague; but, oh my! wouldn't we shake and shiver with the temperature 20° below zero, and the wind blowing a gale? Mr. Miller would compensate for this loss of heat by the use of dark paper to absorb the heat of the sun; but the sun does not shine nights nor on cloudy days, and there are many such.

On the other hand, Mr. Byer has a smaller entrance open and well packed, and lets the moisture percolate slowly through the warm packing that retains a large portion of the heat. That the moisture goes through the packing is readily seen by placing a pane of glass on top of it, when it soon collects moisture on the under side. That the heat is retained is proved by such observations as Mr. Byer and others have made. With suitable packing and small entrances (a half-inch square is enough if so arranged as not to become clogged) I have found hives and combs as clean and dry in March as in November whether the sun shone on them or not. I have also found the constant change of temperature a decided disadvantage.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

A MOST USEFUL HAMMER.

Spilling a boxful of tacks or small nails in the soft dirt covered with trash is enough to make anybody lose his temper unless controlled. But the writer dropped nearly a quart of small tacks into just such a place, and did not lose his temper. Instead, the first thought was about that magnetic hammer mentioned several years ago in this department, and which kind has been in use in our work ever since. With this hammer every one of the tacks was quickly picked up clean from dirt and trash, and they were all in the box again, looking as though they had never been out of it. This is not the first time that one of these tools has done such service, either. The magnetic hammer has an important place in the beekeeper's outfit once its worth is known. It does not pay to purchase the cheap kind that are so often seen in use, and which do not give very good satisfaction. A good strong magnetic hammer that can be depended upon at all times can be used in many ways.



THAT HORTICULTURAL NUMBER.

GLEANINGS can pride itself with a piece of work that is of more value to the country at large than any other publication on the subject of "bees and horticulture." The pages of the March 15th number are so full of this information that it is a veritable bulletin on the subject. Ah! if the dissemination of such exceedingly valuable matter could be placed in the hands of every farmer and fruit-grower, and if it could reach the multitude of persons who are not acquainted with or do not understand the interdependent relations between the honey bee and plant life, what would be the result in better and larger crop productions affected by the proper pollination of the flowers and blossoms? But GLEANINGS, with its wide circulation, is doing a great work through this "horticultural number." Every reader should preserve this copy and make use of it whenever possible. [We have already sent out over a thousand copies of the March 15th issue to fruit-growers whose names were furnished us by our readers in various parts of the country. We sincerely hope these may be the means of bringing about a greater appreciation of the bee on the part of these particular fruit men, at least.—Ed.]



THE SUBJECT OF BULK COMB HONEY.

I do not want to give the impression that it is my intention to "harp continuously" on this subject; but there is a reason for taking up the matter at this time. I have learned during the last two years that my prediction (that bulk comb honey could be profitably produced in the North) was *not* wrong, as many claimed. Through many letters I have learned that bulk comb honey can be produced *and sold* in the North. It

was found by beekeepers, who tried it on a small scale at first, that they could sell all they could produce *right in their neighborhood, and to people who never cared to buy extracted honey or high-priced section honey.*

In this lies one of the greatest and most valuable arguments in favor of bulk-comb-honey production. The valuable point is in that it is possible to sell honey to people in many localities who do not buy the other kinds. This creates a new demand, and insures a larger consumption of honey by a larger number of people over a greater area. The result is a better distribution and less slump in the generally overcrowded honey markets.

Of course, I do not predict that bulk comb honey will replace other kinds to the extent it has in Texas; but when produced *with* the others, and disposed of in places where it will be taken, we do not doubt for a moment that a greater consumption of honey could be worked up, and that prices would be stiffened as a consequence.



COTTON HONEY.

There seems to be a great difference of opinion relative to the quality of cotton honey so much produced in the Southern States. According to the A B C and X Y Z of Bee Culture regarding its flavor, you add, "As a rule it must be used for manufacturing purposes;" and in speaking of its qualities we find this paragraph: "Cotton honey has the peculiarity, when confined, of bursting the receptacle in which it is held. Whether it ferments or generates gas has not been definitely determined. It can, however, be put into casks, providing there is plenty of air-space left to allow for expansion."

According to our experience we believe that this needs a little correction. But the difference in locality and in atmospheric conditions has a surprising effect on the nectar yield as well as upon the quality. Hence the experience of others differently situated may bring out information that will warrant leaving the statements about cotton honey unchanged in the A B C book. We have arrived at a definite conclusion, however, and would like to invite all the readers in the Southern States to write us concerning cotton as a honey plant, its character as a yielder of nectar, the color and quality of the honey, and its keeping qualities. We should like to know the extent of the yield of cotton honey obtained both in a single year and for a period of years—the supply, demand, and the price obtained.

I have under contemplation an extensive illustrated article on cotton as a honey plant; and before completing it I desire to know more about this subject in localities different from my own. It is hoped that many responses will arrive at an early date.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

The automobile, without doubt, will largely take the place of the horse in apiary work; but old Dobbin will be found wending his way up the rough canyon roads and around the foot-hills for some time yet.



Hives should not stand in the shade in this country. There is a difference of from 25 to 45 degrees between the temperature of day and night, which makes the morning sun valuable in getting the bees warmed up and into the field as early as possible. I have fourteen colonies in my back yard, on which I do much of my experimenting and make observations. A part of them are under orange trees, and I find these much less active than those in the sun, except on very warm days.



Mr. J. K. Williamson, of this city, and widely known in the southern part of the State, has sold most of his bees and moved to Mendicino Co. Our local beemen will miss him much; for, besides the convenience of his little hive factory and excellence of his workmanship, he was much consulted on questions of bee management, for he is a close observer, with more than 40 years of experience, 23 of which were spent in Redlands. It is safe to guess that he will soon be in the business at his present location.



No longer does my mind feel akin to that of the "man from Missouri." I have been "shown." It rained long and hard, and doubtless much good will result; but, alas! too late, I fear, to result in the benefit many looked for; besides, it is the off year with the sages, and that, to my mind, is significant. My bees have little more brood than at this date a year ago, due to the long drouth followed by cold stormy weather. The redeeming feature is that I have a much better supply of old bees to support brood-rearing when the weather warms up.



Elias Fox, p. 180, Mar. 15, has taken exceptions to my comments on his bee hunting. He says he would like to live in a country where he could find nine bee trees while walking a distance of two miles, and that he would soon have the bees in hives, or destroyed if diseased. If he could get a permit from the government to cut the trees he could find on this one reserve that there would be a lifetime job ahead of him, and he might safely order a few hundred hives to begin with. Trees that are now sound would be decayed, and contain hollows large enough to hold bees before he got through. Eastern people have little idea of the number of wild bees in this country. Mr. J. D. Bixby, of Covina, Cal., told me of a man

who, having lost most of his bees, took, I think, 140 empty hives, put them up in trees, and caught 120 swarms in one season. In the season of 1905 I divided two strong colonies, that were ready to swarm, into eleven hives, giving each two frames of brood with a queen cell. Six of these gave me a full extracting before the season's close. I can make colonies cheaper than any man can chop them out of trees. It doesn't pay here.



Mr. A. F. Wagner, of El Centro, Cal., p. 144, March 1, has quoted only a part of my sentence on p. 89. Read the two following lines of my article. There seems to be some concern about my knowledge of the foul-brood law, for on p. 700, Nov. 15, Mr. T. O. Andrews says I made a made a very unwarranted attack on it. Now Mr. Wagner tells how the inspector is appointed and how he can be removed. However, here in San Bernardino Co. we have one of those non-removable kind, and we have tried in vain, with petitions, personal talks with the supervisors, and every available means, to get the politician out and a bee inspector in; but we have failed. Why? because the law is *weak* in allowing the office to be at the disposal of the supervisors instead of the beekeepers. A chain is no stronger than its weakest link, neither is a law. But so long as our county is cursed with an inspector such as we have I will continue to pound the law; and to those who desire, I will extend the privilege of pounding me.

If Mr. Wagner had been before the State Association, and heard the discussions on a resolution offered by Mr. Geo. L. Emerson, of Los Angeles, requesting the Board of Supervisors of San Bernardino Co. to remove the present inspector, he would doubtless have a different view of the law. Mr. Emerson's resolution passed without a dissenting voice. Mr. Wagner says, "Do we want the Governor to appoint our inspector?" By all means we do; but we want the beekeepers to have a say about whom he appoints—in short, leave the selection in the hands of the beekeepers, and the legalizing of the appointment with the Governor. Truly it is a condition and not a theory that is confronting us.

Cramps Caused by Eating Honey

Several of my friends like honey, but can not eat it, on account of cramps which it causes in the stomach. Is there any way to overcome this by treating the honey in some way? C. C. C.

[It is true that some persons can not eat honey; but cases of this kind are few and far between. Our impression is that the honey is not always to blame. However, some have suggested that they suffer no bad after-effects if they drink milk at the same time they eat the honey, or mix the honey and milk together.—ED.]

Conversations with Doolittle

At Borodino, New York

INCREASING COLONIES.

I have nineteen colonies now, and would like to increase to forty or more this year. Please tell me how to do it.

Kevil, Ky.

J. G. NANCE.

This inquiry is quite unique; for out of hundreds of letters I have received during the past ten years I have not had one of the kind; but I have received scores during that time asking how swarming could be prevented. The majority of beekeepers are looking more anxiously for a sure way to keep down increase, and more especially for something practical that requires only a little work which will do away with all desire to swarm on the part of our little pets.

[I recall that, during the season of 1873, I desired to increase twenty colonies of bees to forty, and to do it in such a way that I could at the same time get a good crop of comb honey. With this desire in mind I searched all the bee literature I could find in order to learn how I could best accomplish this; and, strange as it now seems, nearly all who mentioned this matter advised doing it by natural swarming. Nearly every writer claimed that, where only the first (or prime) swarm was allowed to issue, more honey could be obtained from the parent colony and the swarm than if no increase was allowed, as the new swarm would work with a vigor surpassing any thing that could be brought about through any non-swarming plan, or by any known means of "artificial increase;" and by using this best of all known ways, both for increase and a large yield of honey, colonies could be doubled each year, which should be enough to satisfy any reasonable person. And I concluded this was right, as, by doubling each year, my 20 colonies would reach the number of 640 in five years.

Now, if Bro. Nance is of the opinion that the best writers lived forty years ago, this plan will be just what he wants, as it will give him 38 colonies next fall, and "roll up a surplus crop greater than can be gotten in any other way." But the trouble with me was that not one colony out of my twenty would be satisfied with giving *only* the prime swarm. So the after-swarms kept issuing when I was in the hayfield, when I was at dinner, when I wanted to be at church, before breakfast, after supper, and, in the slang of to-day, "at almost any old time," until I found that the parent colony gave but little surplus. I tried all the plans given to stop after-swarming, but without success, till one night while lying awake (this lying awake nights and planning for the future is one of the symptoms of the bee fever), it came to me that no after-swarm ever issued without the piping of the first young queen that emerged from her cell; and if all queen cells were cut early the first morning after piping was heard at night, all after-swarming would be prevented. After this conclusion I soon fell asleep.

Waking refreshed, though not rid of that bee fever, I soon treated four colonies by shaking the bees from every comb in the hive and pinching every queen cell found in which I had heard piping the night before. I now watched operations. There were no further swarms, and the bees were working in the sections a week later better than new swarms would have done. This was what I practiced for the next twenty years, and I had an average yield of over 80 lbs. of comb honey from each old colony.

But Bro. Nance may prefer to have no natural swarms at all, as do the rest of us in this twentieth century; and if so, he will find the following plan of increase one of the best, detracting but little from the results of his non-swarming colonies:

When the colonies begin to grow strong in brood and bees, and before they contract the swarming fever, take two frames of emerging brood from any strong colony, or one frame from each of two colonies, putting them in an empty hive together with two frames partly filled with honey, having the two frames of brood between the frames of honey, and putting a dummy next to the comb on the vacant side of the hive. Before putting them in the empty hive, all bees should be shaken and brushed off in front of the hives from which they were taken, so that no queen will be taken from her colony. The space left vacant by thus taking these combs out is filled with frames of comb, if possible; if not, with frames of comb foundation. Now select another of the stronger colonies. Put a queen-excluder on it temporarily, and place on it the hive already prepared, having the two combs of emerging brood, which should be allowed to remain two or three hours, during which time the young bees will come up from below in sufficient numbers to care for the combs and brood.

After this the hive should be placed on the stand it is to occupy. Queens should have been previously reared, or purchased for these colonies, so that laying queens can be given them at dusk that night. A ripe queen cell will answer; but a week or more of time is lost where such cells are given. These colonies can now be built up in any way desired. I find that, if they are made a little in advance of the swarming season, as soon as the queen begins laying such colonies will build from two to four nice combs of the worker size of cells, if frames having starters are given them. But it is usually best to use frames filled with foundation. I have made colonies in this way with perfect success, clear up to the time of the blooming of buckwheat. There is no need of natural swarming for increase when we can make as many colonies as we desire in so easy a way. But such plans as these are made possible only through the advent of the queen-excluding metal.

General Correspondence

COMB FOUNDATION

What Weight to Use and How to Use it

BY R. F. HOLTERMANN

Opinions as to the use of comb foundation vary greatly. To one beekeeper its use at all is deemed an extravagance; another wants full sheets everywhere; and a third, after wrestling between his own sense of what is right and his innate penny-wise-and-pound-foolish tendencies, gives the bees in the brood chamber half a sheet of foundation.

To the beginner let me say that the beekeeper who uses foundation secures straight combs of worker cells which may be used for twenty years—a very important item; and the bees are saved at least a portion of the labor of producing wax and of the honey necessary to produce the wax, because honey is to the bee in the production of wax what grass is to the cow in the production of milk; and the secretion of wax is largely a voluntary act, and to that extent unnecessary.

In Canada it is safe to say that every beekeeper who wants to feel sure of straight combs uses at least starters in his frames. A starter is vastly better than no comb foundation at all; for it is natural for the bees to get their suggestion of worker comb from the nature of the cells above. It is true that bees in cell-building often turn from worker cells to drone; but it is seldom that a comb started *drone* is changed to worker. I am not now referring to worker combs which had a hole in them, which the bees filled with drone comb. Half-sheets of foundation tend more to encourage the building of drone comb than mere starters, probably because the worker bees get the start of the queen's laying, and turn to building comb for storage purposes which, in a fast flow, means drone comb. To me it has been amply demonstrated that when starters are used there is likely to be a larger proportion of worker cells in the brood chamber than when half-sheets are used. If your pocket-book is empty, therefore, use full sheets as far as you can, and then finish up with narrow starters rather than half-sheets.

THE EXTRACTING-SUPER.

For extracting-combs I always use full sheets of foundation, and these combs may then be used interchangeably with those in the brood chamber. There is not much of this shifting in our apiaries, yet occasionally the need is great. Again, there are occasions, if drone comb is absent in the brood chamber when the bees will prepare the drone cells in the supers for the queen, and will hold them for her to the exclusion of honey. Under such conditions there must be a lack of harmonious conditions in the hive, which more or less antagonizes the worker bees

toward the queen—a condition which it is not well to bring about.

WEIGHT OF FOUNDATION.

The proper weight of comb foundation to use is a matter upon which there is a great variety of opinions. The make of the foundation, the wax, the climate and temperature, and the conditions under which the foundation is used, such as the strength of the colony and number of bees which cling to the foundation, room and ventilation, the support the foundation receives, all have an effect upon the resisting power of the wax and the pressure brought to bear upon it. I use a grade half way between medium and light brood foundation, and I support the sheet by means of three horizontal strands. There are those who advocate vertical wiring. I have no quarrel with such; but, in passing, I want to say such wiring necessitates a thicker and stronger bottom bar than is generally used, or a substantial stay between the top and bottom bar; and this and the other "fixings" take much more time than is worth while for me. This season I expect to run over 10,000 super combs, and the horizontal wiring is all I care to undertake. Perhaps it may be well to state right here that probably no plan embraces all the advantages.

In wiring, let us remember that, without support, the greatest strain on the foundation is on that portion of the sheet nearest the top, and the wire should be placed accordingly. For instance, to put a wire at the bottom of the sheet only prevents the sheet from sagging at the bottom; and if it stretches at all, such a wire will cause it to buckle. The upper part of the foundation bearing the greatest weight should have the greatest support from the wires used.

HOW TO GET FOUNDATION DRAWN OUT.

A long thin sheet of comb foundation attached only at the top brings about a condition not found in nature. When the bees build comb they fasten it to the top. The sides are rounded, and the side walls of the cells are largely built out by the bees before the lower half of the comb is built. Then come the excitement and heat generated by the bees when they first cluster in the hive after swarming is over before they begin building comb. *Foundation* has to stand all these strains when the bees are hived on full sheets. The best place to draw out foundation, barring weak stocks, is in an extracting-super with a moderate honey flow, giving the bees partly drawn comb and the rest foundation. In drawing out foundation the frames should not be spread beyond the normal distance. Thus, in my twelve-frame super (for that is the hive I use), I put on one side five drawn combs, on the other side six sheets of foundation. Before this foundation is entirely built out or capped, one of the frames (now combs) is taken out, and the remaining

five combs spread to cover the space the six previously occupied; but the spreading should be done before the comb is capped.

If foundation has to be used with swarms the new swarm should be given an abundant entrance; and an entirely empty hive body under the true brood chamber is desirable for a few days. Then the hive should be shaded from the heat of the sun. At various times I have had comb foundation made from wax which came from South Africa. This, although testing chemically pure, lacked the needed strength. It appeared to me to have been damaged in rendering.

Brantford, Can.

EARLY BROOD-REARING

Conditions Affecting the Production of Seasonable Brood

BY LEO ELLIS GATELEY

It is a common belief that, the earlier in the spring colonies can be induced to start brood-rearing, the better they will be when the surplus season arrives. Early breeding, however, does not invariably produce such an effect; and under certain circumstances, because of vitality wasted in maintaining a brood temperature during cold weather, it frequently wears out three old bees for every new one produced. With the passing of winter on the other hand, possibly a dozen may be hatched for every one which is worn out. In view of this fact, undue stimulation of the queen at unnecessary times is a practice to be shunned.

Unless one knows just what he is going to do with the bees produced, it is impossible to have any fixed rules as to when breeding should begin. In cold weather a large amount of stores and vitality is expended in producing a small amount of brood. Moreover, bees reared in winter and early spring never live to see the main honey-flow. Any number, therefore, reared beyond the quantity required to replace those that are gradually dying off (unless needed for other purposes) will be produced at a dead loss. With a rather late flow it is certainly just as well to leave this matter to the bees. The beginner who is in doubt as to just what may be next on the calendar can, if his apiary is not in bad condition, do no better than to leave the question of early breeding entirely out of calculation.

In localities that permit of building up colonies to sufficient strength, so that increase can be made before the flow, or if bees are desired for some other equally obvious consideration, there should, with the advent of warm days, be little delay in brood-rearing activities. Conditions that permit of making considerable increase previous to the honey-flow are, perhaps, exceptional, but they exist here each spring. Again, with the exception of an exceedingly limited portion of the extreme south, a considerable percentage of the force of even healthy and prosperous colonies will usual-

ly perish during the winter from cold and old age. None of the colonies may be extra strong, and a few may be short of stores. If nearly out of stores, there will be practically no breeding done until nectar is found. When confronted by such situations the careful apiarist can sometimes do well to arouse the bees to the fact that summer is coming should they seem to be oversleeping any opportunities.

It is the colonies strong in bees and well supplied with honey that will be first to begin breeding in the spring. Of the several factors entering into the economical production of brood, the two mentioned above are unquestionably of the greatest import. The most superb example of early breeding ever coming under our observation was the case of a tall box hive of pure blacks purchased for a dollar last year. The whole front of this hive had been knocked out from top to bottom, not to speak of the cover, which consisted only of strips put on, in many places, an inch apart. The hive had passed through sun and rain during the entire winter, yet it was the strongest last spring of any colony we had ever seen at that season. A division was made in March, and in transferring the combs to a modern hive they were heavy with brood, and many drones were noticed that had been tolerated over winter. If colonies are strong and abundantly supplied with stores they will breed up in spring even under adverse circumstances.

With the coming of actual spring weather, backward colonies may be helped by the addition of young bees, and perhaps, still later, with brood. Or stimulative feeding may be practiced to advantage on days when the weather prevents the bees from foraging. The bees can also be made to move honey from one part of the hive to another by simply turning it end for end on the stand. The principal points in promoting brood production are bees, honey, warmth, a young and prolific queen; and, for fast work, a nectar and pollen supply.

Ft. Smith, Ark., Mar. 1.

SHORT COURSES IN BEEKEEPING AT MASSACHUSETTS AGRICULTURAL COLLEGE

The annual short course in beekeeping at the Massachusetts Agricultural College is offered from May 29 to June 13, 1912, to be concluded by a convention and field day. The course and convention are under the personal direction of Dr. Burton N. Gates, in charge of the apicultural service of the College and State.

The course includes lecture, laboratory, demonstrational, apiary, and field work, as well as excursions to large apiaries and queen-rearing plants. The concluding convention should bring together a hundred or more representative apiarists of the East, besides the noted authorities and commercial men who appear on the program.

The features of this convention will be lectures, demonstrations by authorities of

national reputation, as well as displays by inventors, manufacturers, supply merchants, and queen-rearers.

A special invitation is extended to all beekeepers to display and demonstrate inventions, implements, or methods. If table space is desired, or special equipment is to be prepared, notice should be sent to Dr. Burton N. Gates, Amherst, Mass., at least two or three weeks before the convention. The College will provide covered tables for the exhibit.

It may be found necessary to limit the number of students in the course, yet applications are accepted in the order in which they are received. No registration fees will be charged. Women are cordially invited to attend.

Registration with the Extension Service, Massachusetts Agricultural College, Amherst, Mass., is necessary for admission to classes.

CONVENTION PROGRAM.

June 12.

Morning, 9:00. Entomology building. Displays of manufacturers and queen-rearers.

9:15. Demonstrations. Improved flexible-plate foundation-fastener. Mr. A. H. Byard, West Chesterfield, N. H.

The Aspinwall hive. Demonstrator to be announced.

The remainder of the morning will be devoted to an excursion conducted by Director Brooks of the Experiment Station for the inspection of bee-forage crops. Leave entomology building at 10:00. (If possible the trip will include a visit to a North Amherst pasture where white clover has been brought in by top dressing.)

Afternoon, 2:00. Entomology building. Addresses. Bees in relation to fruit culture and plant life. Mr. A. W. Yates, Hartford, Ct.

Subject to be announced. Mr. R. H. Holmes, Shoreham, Vt.

Demonstrations. Electric foundation fastener and wire imbedder. Mr. H. F. Davis, Holyoke, Mass.

Inventions. Mr. F. Danzenbaker, Norfolk, Va.

Adjourn to the apiary. The features of the newly erected apiary building will be explained, including the general work shop, honey-room, box extracting room, bee-cellar, and equipment.

Demonstrations at apiary. Queen-rearing. Mr. F. M. Keith, Worcester, Mass. Demonstration of treatment of infectious bee diseases. State Inspector.

Evening, 7:30. Clark Hall. Address of welcome, by Pres. K. L. Butterfield.

Address by Hon. J. Lewis Ellsworth, Secretary State Board of Agriculture.

Illustrated lecture on the life, habits, and development of the honeybee, by Dr. James P. Porter, Dean of Clark College, Worcester, Mass.

June 13.

Morning, 9:00. Entomology building. Address. The progress of apiculture in the last two years, by Mr. E. R. Root, editor GLEANINGS IN BEE CULTURE, Medina, O.

Subject and speaker to be announced.

A few homely facts—things worth knowing how to do, by Mr. Arthur C. Miller, Providence, R. I.

Demonstrations. Mr. H. F. Davis, Holyoke, Mass. Electric honey-cutter for sectioning comb honey.

Demonstrations yet unannounced.

Afternoon, 2:00. Apiary. Demonstrations. Production of a swarm artificially, by Mr. E. R. Root.

Fuller queen-rearing system with completed outfit in operation, by Mr. O. F. Fuller, Blackstone, Mass.

Shook swarming, a method for the business or professional man, by Mr. H. F. Cary, Lyonsville, Mass.

Unannounced demonstrations.

REMOVING BEES FROM WALLS OF BUILDINGS, CREVICES IN ROCKS, ETC.

A Plan for Getting All the Bees, Including the Queen and the Honey, without Mutilating the Building.

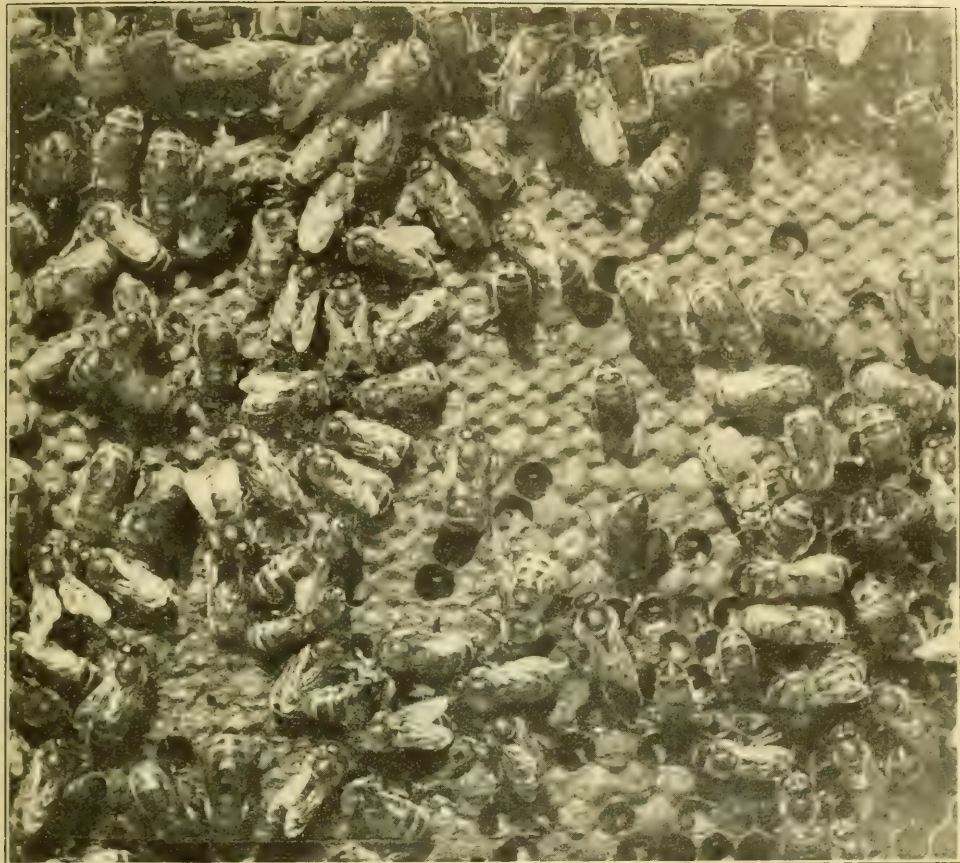
BY GEO. W. RICH

A few years ago I read of a plan for taking a colony of bees out of a building without damaging the wall in any way. The idea was to place honey close by; and, when the bees were excited, a bee-escape was placed over the entrance, the supposition being that, because part of the bees were outside, the rest would come out to join them, so that, before long, nearly all the bees would come out. Then all that was necessary was to put them in a hive containing comb, some of which contained larvæ and brood. In a day or two the bee-escape could be removed and the bees would "rob" the honey from their old combs and store it in the hive.

This plan seemed very easy, and I was anxious to try it; but I never had an opportunity until I came to California, where I found many colonies of bees in the cliffs and rocks, in squirrel-holes, etc. I have removed thirty-five or forty colonies this winter, most of them from crevices in rocks. In some cases I have secured as much as 100 pounds of honey. This is often hard work, as some colonies are in places that are difficult to reach. But there is considerable excitement and fun attached to it, which I enjoy.

Sometimes the entrances to the cavities are two or three feet across, and often the combs are so far back that one can not reach them. To help out in such cases I prepared a framework out of half-inch lumber about 2x3 feet, having a hole in the center 5x7 inches. Around the outside of this frame I tacked burlap a foot or two wide so that, if the whole thing is set in front of the entrance, the cloth will fill up the space where bees might get in or out. With this in position the bees have to fly through the opening in the center. In a board that just fitted this opening I cut a hole 3½ inches in diameter, over which I tacked a funnel or cone made of wire cloth 3 inches high, the hole at the outer end being made with a pencil, so it is just large enough for one bee to escape at a time. An ordinary bee-escape will not do, as it shuts out the light.

A quart bottle containing honey and water (about equal parts of each), a hive filled with combs, one of which has some larvæ, brood, and a few bees, and a smoker, the fuel in which has been sprinkled with crude carbolic acid, completes the equipment. On some warm day, adjust the frame in the opening of the crevice containing the colony in such a position that the hole in the center is just about where the bees go in and out. Arrange the burlap around the outside so that no bees can pass in or out except through this entrance.



Can you find the queen?—Photo by H. C. Short, Winchester, O.

With the bottle, sprinkle a little honey and water inside the frame in order to start the bees, then put some on the outside. When they are working well outside, put the board containing the wire-cloth cone in place, and soon about a third of the colony will be outside. Then place the hive so that the entrance is close to the bees, and get them started in. When all are inside, take off the board containing the cone; throw more honey and water back as far as possible in the crevice, then put the cone back in position. By repeating in this way the second time, at least three-fourths of the colony will have come out; and, when they are all in the hive, fasten it up and take every thing away from the opening into the crevice. Light the smoker containing the carbolized fuel, and blow smoke as far back as possible, using a piece of hose in order to get the force of the smoke far enough back if necessary. In every case this will drive out the rest of the bees, including the queen; but she will not come out until most of the bees have left. As soon as the queen is in the hive, close the entrance to the crevice of the rock tightly to prevent any bees from getting in. In a

day or two open it again; and if a little honey is thrown inside, the bees will soon begin to carry all of the honey from the old combs into the hive.

Simi, Cal.

BEEES ON COMB PHOTOGRAPHED

BY H. C. SHORT

This photograph of bees on a comb was taken during the fall honey flow when every available cell was crowded with honey. Most of the bees ran around on the shaded side of the comb while the camera was being focused.

The queen found an empty cell and laid an egg in it while I was getting ready. I waited patiently, but she would not do it again. I shall try again next year and hope to have better success.

Winchester, O.

[We know by experience how difficult it is to get a good picture of bees on a comb, and we wish to say that our correspondent has done a splendid piece of work in producing this picture. Can you find the queen?—ED.]



An apiary of 11 colonies near Cincinnati that produced $2\frac{1}{2}$ barrels of honey last year.

BEEKEEPING AROUND CINCINNATI

BY REV. E. R. WAGNER

Cincinnati is no mean city, even if it is divided by rivers and an imaginary State line. We are not very far from the center of population of the United States nor from the center of the bee business. Here Mr. C. F. Muth originated his famous roof apiary. He loved bees so much that he kept them next to his sleeping-room. Hamilton, O., is just twenty miles away, where Rev. L. L. Langstroth lived, reasoned, experimented, and wrote; and sixty miles away his sacred ashes rest in Woodland Cemetery, Dayton.

In regard to bee forage, I believe we are most favorably situated. The many little valleys running into the Ohio River; the marshes, the steep hillsides, many covered with nectar-yielding trees, and at the same time yellow clover, sweet clover, white clover, smartweed, wild cucumber, etc., making our territory almost a paradise for the real lover of bees.

Cincinnati, O.



SWEET CLOVER ON WASTE LAND

BY HENRY REDDERT

Since the appearance of the article on the distribution of sweet-clover seed to the members of our association, Dec. 1, p. 726, I have received several inquiries from ranch-owners

in the West regarding the advisability of cultivating the land before sowing, and asking whether it grows on hard black land or sandy or hillside country. For the benefit of others interested, as I can not answer all personally, I submit the following:

Sweet clover will grow in almost any locality where there is plenty of sunshine and an occasional rain. Indeed, most of the sweet clover thriving around Cincinnati grows on the slopes of hills and on railroad banks, along creeks, on the dusty roadsides, and in every nook where no one ever thinks of planting any thing. Even among rocks, or the ledges of stone-quarries, sweet clover makes its appearance.

It needs no further cultivation before or after the seed is sown, providing the sowing is done after a shower of rain to give it the impetus to germinate. It should be sown in the fall of the year—in August or September. When the seed-pods become dry and open up, nature will do its work. The September winds spread it broadcast; and after once taking root it sows itself at a surprising rate on rocky hillsides. It will make its appearance the next year graded down to such an extent as to expose the yellow loam that would not nourish any other crop without fertilizer; and in spots where underbrush or trees have been cleared away it will be found blooming the next season.

Sweet clover is a hardy plant; and after once taking root it can stand a long drouth. During the hot summer days when in full

bloom, the thermometer ranging from 107 to 110 degrees in the sun, the hum of the bees when working on sweet clover sounds like an electric motor. Its roots will penetrate the ground to a depth of between 3 and 4 feet. Indeed, it is known to have cast its shaft 8 feet in order to get water.

SWEET CLOVER AN IMPORTED PLANT.

Fifty years ago progressive beekeepers of this city imported the seed from Europe, and sowed it on what was later known as Brown Street Hill. From here it spread over the entire Mill Creek Valley; thence to Kentucky and Indiana, and now we meet it wherever it has an opportunity to gain a foothold. Along country roads it grows close up to the wagon-tracks. It even seems to thrive on the dust stirred up by the travel on the highway. Along fences where the soil has never been touched by the plow or cultivator it forms a veritable hedge of snow-white flowers during full bloom. Who cultivated all this vast region? Only the hand of nature.

AS AN AGENCY IN SOIL FERTILIZATION.

If sown on cultivated land for a few years, and plowed under, it furnishes sufficient fertilization for other crops. The proof of this is seen on our hillsides, the soil being black from 15 to 18 inches. Wherever sweet clover has been abundant, this soil in most places is only the cover of some stone-quarry. Our farmers should try it in order to convince themselves.

AS FOOD FOR CATTLE.

When young it furnishes excellent food for cattle to browse on. No matter how often cut short before bloom, when the time comes it blooms just the same. This we observed along railroad lines, the men mowing it short in order to prevent its hanging over the tracks. It seems that sweet clover has not been appreciated as much as it should be, especially by our farmers; but the day will come when it will be recognized.

Cincinnati, O.

[From the way the various experiment stations are becoming interested, we believe the value of sweet clover is already recognized. —ED.]



HAND'S SWITCH BOTTOM-BOARD IN THE TREATMENT OF FOUL BROOD

BY J. B. HOLSINGER

I have been interested in bees from boyhood, and have kept a few colonies as a side line since 1875, partly as a means of obtaining outdoor exercise, having worked at a watch-maker's bench for over thirty years. In the fall of 1909 I discovered signs of American foul brood in some of the colonies. The following June I found three colonies that were affected. One was successfully treated by the Baldrige method, and the other two I shook on starters of foundation, and four days later gave full sheets, but the disease



Sweet clover in the valleys running into the Ohio River near Cincinnati.

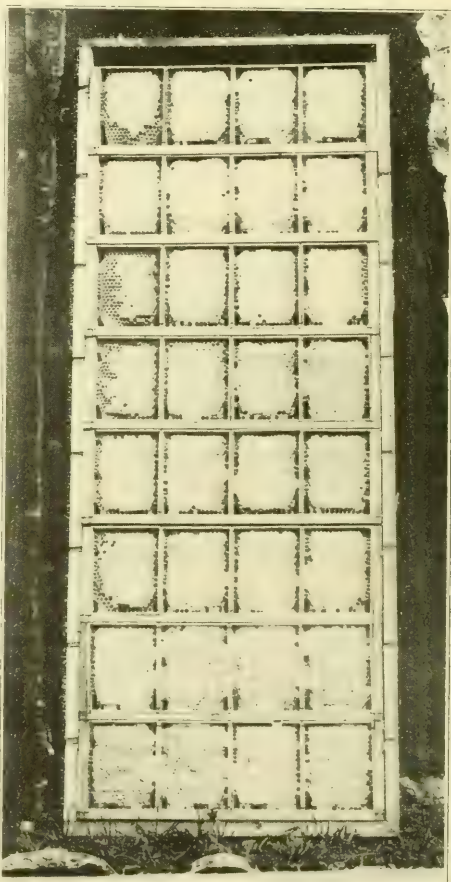


J. B. Holsinger's apiary in the outskirts of Johnstown, Pa.

reappeared in the fall, and in the spring I found both colonies affected, and treated them as follows, from ideas I got from J. E. Hand and Geo. M. Steele.

On June 20 I set one colony on top of the other on one end of Hand's switch bottom-board, and took both queens away. On the other end of the switch bottom-board I placed a wood-and-zinc queen-excluder, and on this a hive with full sheets of foundation in frames. I then shifted the switch lever; and when a goodly number of bees were in the new hive I ran one of the queens in at the top and put two tubes, 8 inches long, back of the lever, with holes large enough for drones to pass; but they became clogged with drones that the bees were removing, so I removed the tubes and used a Porter bee-escape instead, which worked all right. I removed the queen-excluder from under the hive after four days, and soon had a powerful colony of bees in the new hive, with a good-sized swarm hanging out until I opened the side entrance. I am not sure, however, that the queen-excluder was necessary. Four days later I put on the first super, and a week later I put on a super that was well started by one of the colonies before treatment. This was rather risky; but as the honey-flow was good I think it is all right, as up to Oct. 20 there were no signs of disease. About 30 days after treatment I removed the diseased hive and used a little sulphur to destroy the few remaining bees, when the combs were destroyed and the frames boiled in a strong solution of concentrated lye and rinsed in hot water, which made them like new.

From this colony I took 153 well-filled sections of honey. I am so well pleased with the switch bottom-board that I expect to use it on each stand another season. I am aware that some make light of this use-



Super of honey taken off early in September.

ful invention; but if I can get rid of foul brood and still get a good crop of honey with so little manipulation, I shall be satisfied. I started in the spring with 16 colonies, and increased to 27. From 13 colonies I took 729 sections of honey as follows from each: 153, 70, 53, 53, 52, 50, 47, 47, 42, 30, 28, 27, 26. I keep my bees at the outskirts of the city, one mile by electric, and a half-mile walk brings me to them.

ROBBING OUT PARTLY FILLED SECTIONS.

I have been using a method for cleaning up partly filled sections that works very well and there is no danger of spreading disease. When the last super is removed, take out all good sections and put back on the same hive the super with the partly filled sections. In about a week after this, place a pepper-box feeder, containing half and half sugar and water, over the bee-escape hole. When the bees get nicely at work on the feeder, uncup the honey and move the feeder a little to one side. The bees will enter the super and remove the honey.

Johnstown, Pa.

AN ENTRANCE SHADE-BOARD

BY C. E. ADAMS

I am using a shade-board that I believe is a little better than any thing that has been described. It is shown in the accompanying engraving, the second hive from the front on the right having one in position over the entrance. It can be made of very light cheap stuff, and yet can not be blown away if it is firmly braced.

The covers on these hives belong to the winter cases, and they give excellent results as shade for the upper part of the hive.



Entrance shade-board used by C. E. Adams, Exeter, N. Y.

I have also a wintering device and feeder combined that has proven very handy. Two of them are shown on the box at the further end of the picture. A shallow tray holding about a quart of syrup is in the center of the box, and is surrounded by packing material. The whole thing is about the size of a ten-frame super, being 16x20 inches outside dimensions, and about 6 inches deep. With this protection over the brood-chamber in the spring I can feed earlier and with less bother than with any other feeder I have ever seen.

Exeter, N. H.

CHARACTERISTICS OF THE CROSSES BETWEEN ITALIANS AND CAUCASIANS

BY J. J. WILDER

In my previous article, page 455, August 1, I endeavored to show that Caucasian bees are not only equal to Italians as honey-gatherers, but that, under certain conditions, and at certain times, they are superior in this respect.

Caucasians are great propolizers, and they build considerable burr and brace comb, and for these reasons some feared that they would not be of much commercial value. Now, it is true that these are serious objections, and one could hardly be blamed for condemning the bees on this account. However, it occurred to me that, since the Italians do not propolize to any great extent, and build but little brace-comb, a cross might tend to eliminate these bad features. Black bees are not prolific enough to suit me, and the Italians are not satisfactory for several reasons. Hence I began crossing the Italians and Caucasians, and by selection succeeded in getting a strain that is far more satisfactory than either of the two races in their purity.

CHARACTERISTICS OF THE CROSSES.

As a rule, pure Italians do not build up fast enough in the early spring; and not until some nectar is coming in do they make rapid progress in rearing brood. Then if the honey-flow happens to be heavy and of short duration they are slow at storing. This is not true with the Caucasians and their crosses, for they spread brood rapidly in the spring, and keep the brood-nest compact besides, so that, by the time the honey-flow comes on, their hives are boiling over with bees ready for the harvest. They do not start off with a rush, and later become



M. D. Price among his 220 colonies, all in hives made of redwood lumber.

lazy, but they keep up in point of industry throughout the season.

My experience has been that, under severe test, while Italian bees disappear in great numbers, the Caucasians hold their own.

DO CAUCASIAN BEES BUILD UP TOO SOON IN THE SPRING?

Some have said that they do not want Caucasians because they build up so rapidly in the early spring and consume all their stores before the honey-flow which comes later. I have not found this to be true. In the late fall they follow the queen closely with honey, and, as a rule, they go into winter quarters much heavier than do the Italians. On this account they have ample stores next spring to last until the honey-flow.

CAUCASIANS DO NOT CAP THIN HONEY.

Here in the South we have a good deal of thin honey from various sources; and before it is thoroughly ripened the Italians cap it and then it begins to ferment, giving it a wet greasy appearance. This is not true of the Caucasians, for they keep such thin honey spread out in the comb, and they are very slow to cap it. When it is thoroughly ripened, however, and finished, it has a beautiful appearance and fine flavor, so that it brings the highest market prices.

ABOUT THE TENDENCY TO SWARM.

Mr. Frank Benton, the importer of the Caucasian bees, stated that they swarm con-

siderably, and the A. I. Root Company made the same statement after giving the bees a limited trial. But, if I mistake not, Mr. Benton explained that the cause of the excessive swarming is because they are so often kept in small hives in the country from which they came. I think this must have been true; for the first two or three years I kept these bees they would send out very small swarms, hardly worth hiving, except when several clusters went together. Such swarms came from very large colonies, too, from which much larger swarms were expected. Such small swarms were hardly missed from the parent colony, and the work in the supers was changed very little.

I have been trying to eliminate this inclination to swarm by breeding, but have not fully succeeded; for once in a great while they will swarm, although not enough to make necessary any of the usual preventives except providing ventilation and plenty of room.

The late R. W. Herlong, of Fort White, Florida, whom I referred to in my article on page 763, Dec. 15, as having had considerable experience with these bees, stated that he had had practically no swarming. Mr. W. F. Williamson, of Arabi, Ga., has a large Caucasian apiary, and has never had a swarm, although he has harvested good crops.

SOME MINOR POINTS OF SUPERIORITY.

These bees build more queen-cells, and larger ones. Their queens are more uniform in size. The bees are gentler than the aver-

age Italians. They always have plenty of drones. They are less inclined to rob. They supersede their queens readily and oftener. Fewer colonies become queenless. The colonies are more uniform in strength. They enter the supers more readily. Queenless colonies and nuclei accept queens from ripe cells more readily. The bees build up faster when it comes to dividing and making artificial increase.

Cordele, Ga.



A WESTERN APIARY IN WINTER QUARTERS

BY M. D. PRICE

On the front covers of GLEANINGS we have been having a number of views of eastern apiaries in winter quarters. I am sending you a view of my apiary in California that was taken two days before Christmas.

The large piles of frames are some old ones that I discarded. I bought my apiary of a party here whose hives were 18 inches long and 10 deep, so I got rid of them, for I wanted to use hives of Langstroth dimensions. These I like better in every way.

One of the views shows a cluster of manzanita. This commences to bloom the last week in December, and is valuable, because it allows the bees to breed up early. There is very little surplus from it; but the honey is water-white whenever there is enough to extract.

I have in my apiary 220 colonies which I handle all alone, except at extracting time.

I make all of my own hives and frames of redwood lumber, which does not rot as quickly as pine. Some of the hives that I bought were fifteen years old, and were as sound as a dollar, and yet had never been painted.

Arroyo Grande, Cal.



BEEES AS BUILDERS OF FLOWERS

The Part Bumblebees have Played in the Growing of Red Clover; How Bees Pollinate the Flowers

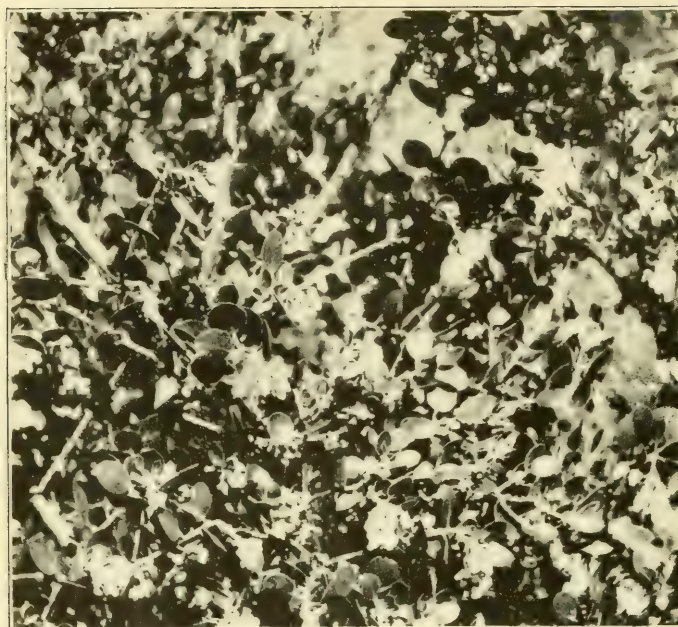
BY JOHN H. LOVELL

The English nation owes its power and wealth largely to bumblebees. This statement sounds a bit sensational, not to say improbable. But it was the opinion of a distinguished German scientist, Carl Vogt; and it is endorsed by one of the most eminent of living biologists, Ernst Hæckel, of Jena. Let us examine the evidence.

The red clover (*Trifolium pratense*) is chiefly pollinated by bumblebees, and is, therefore, called a bumblebee flower. The early settlers of New Zealand learned this to their cost. When they attempted to grow this valuable fodder plant, much to their astonishment it failed to produce seed. On inquiry it was learned that there were no bumblebees on those two large islands; but when about 100 of these bees were imported from Europe, the red clover soon became very fertile. Once introduced, the bumblebees multiplied apace, and a few years ago a letter appeared in one of the New Zealand



Typical California view, apiary of M. D. Price, Arroyo Grande, in the distance.



Manzanita blossoms which furnish honey for early brood-rearing.

papers complaining that they were becoming so numerous that they threatened to consume the nectar of all of the flowers and leave none for the domestic bee. The alarm, however, seems to have been groundless; for in 1905 the Canadian Department of Agriculture received a letter from the secretary of an agricultural association in New Zealand inquiring what species of *Bombus* pollinated the red clover in that country. Three kinds of bumblebees (*Bombus terrestris*, *B. hortorum*, and *B. hortorum* variety *Harrisellus*), descended from those imported in 1885, are stated to exist in New Zealand; but *B. terrestris*, the most abundant species, was regarded as unsuitable for clover pollination, owing to the shortness of its tongue. It was believed that the best results had not yet been obtained, and that it was desirable to introduce other and more suitable species.

According to Carl Vogt, one of the most important foundations of the wealth of England is found in the cattle, which feed principally upon red clover. "Englishmen," says Hæckel, "preserve their bodily and mental powers chiefly by making excellent meat—roast beef and beefsteak—their principal food. The English owe the superiority of their brains and minds over other nations to their excellent meat." There is no need to enter into any discussion here as to whether Hæckel's logic is sound or not, but it will hardly be denied that the production of this meat depends to a great extent upon the industrious bumblebee.

The dependence of the red clover upon bumblebees, either in this country or in Europe, is, however, not as complete as has

been assumed. It has been shown repeatedly in GLEANINGS that, under certain conditions, flowers are very freely visited by honeybees, and hundreds of pounds of red-clover honey are produced. Undoubtedly the most remarkable illustration ever recorded of the relation sustained by honeybees to the inflorescence of the red clover was given by E. R. Root in GLEANINGS for 1906, Aug. 1, p. 990. Near his north beeyard there were several fields of red clover. When the farmers began cutting these fields, the cutter-knives of the mowers stirred up a great number of bees, which so fiercely attacked both the horses and men that it looked as though they were not going to let anybody cut off their honey supply. At the same

time, a few miles away, near his south yard there was a big field of rank clover on which scarcely a bee was to be found. Here on clover fields only two miles apart the behavior of the bees was diametrically opposite. This is explained by a difference in the rainfall of the two localities. At the north yard there had been a drouth the whole season, and the corolla tubes of the red clover were so short that the nectar was readily accessible to the bees; but at the south yard there had been plentiful rains, and the tubes were so long that the bees could not reach the nectar. Pollination is also occasionally effected by other long-tongued bees, besides those mentioned, as well as by butterflies.

Incidentally it may be added that Darwin pointed out that the number of bumblebees in England was determined by the number of cats. Mice rob bumblebees' nests, and are in turn killed by cats; consequently if there are few cats there are many mice and few bumblebees. Here Professor Huxley suggested that, as old maids are fond of cats, and usually keep one or more of these animals as pets, it depended upon them whether there should be an abundant crop of red clover or not. It is certainly a curious instance of the intimate correlation of every part of nature.

Three other genera of very common bumblebee flowers may be found in almost any old-fashioned garden. They are the larkspurs (*Delphinium*), the aconites, or monkshoods (*Aconitum*), and the columbines (*Aquilegia*). They all agree in having the nectar concealed in long spurs, or nectaries, which vary in different species. The tongues of different species of bumblebees

likewise vary in length, ranging in the workers from $\frac{3}{16}$ to $\frac{1}{8}$ of an inch. In the females, or queens, the tongue is still longer, and in the garden bumblebee of Europe (*Bombus hortorum*) reaches the length of $\frac{1}{2}$ of an inch. Of our hardy perennials there are few which produce a more stately effect than the bee larkspur (*Delphinium elatum*) with its wandlike racemes of deep-blue flowers. The plant is a native of Europe, where it is pollinated by the female of the garden bumblebee, no other bee on the wing at the time it blooms having a tongue long enough to reach the nectar.

The aconites, or, as they are perhaps better known, the monkshoods, so called from the shape of the flower, are so dependent on bumblebees for pollination that this genus of plants is absent in those parts of the world where there are no bumblebees. For instance, there are no bumblebees in Africa, Arabia, Australia, or New Zealand, except those recently introduced, and in these regions there is no indigenous species of *Aconitum*.

I know of no plant cultivated for its flowers alone which manages to thrive and bloom so profusely under the most untoward conditions as the common garden columbine (*Aquilegia vulgaris*). The variously colored pendulous blossoms are great favorites with bumblebees, to which they are well adapted. Our wild columbine (*A. canadensis*) has scarlet flowers which are yellow inside, or rarely all over, and is often visited by hummingbirds as well as by bumblebees.

As pollinators of flowers, the bees, or *Anthophila* (flower-lovers), far surpass all other insects in importance. In their adaptations for collecting nectar and pollen, in diligence, and in their mental attributes, bees stand easily in the first rank. To them more than to any other insects is due the evolution of our flora. Unlike all other flower visitors they collect pollen, and it is this habit which has gained them their pre-eminence in the floral world. The beetles, flies, and butterflies take no thought for their young except to select a suitable place in which to lay their eggs. The solitary wasps provide their nests with flies, spiders, beetles, and other insects, which by stinging they have left paralyzed and helpless or dead; while the social wasps go a step further and masticate their prey before feeding it to their young. But bees are the only insects which feed their offspring with pollen; they are thus wholly dependent upon flowers, both for food for themselves and their brood.

As the result of this interdependence of bees and flowers, united with the industry and mental acuteness of the former, there have been developed a great company of bright-colored blossoms which are especially adapted to their visits, and are, in consequence, called "bee flowers." They agree in having the nectar deeply concealed, where it is inaccessible to ants and other pillagers. They are often irregular in form,

as in the pea, bean, and snapdragon. The object of these odd and sometimes bizarre forms is to compel the bee to pursue a fixed path to the nectar so that pollination may be effected with greater certainty. Finally they are more often blue than any other color. So dependent are many flowers upon the visits of bees that, in their absence, they fail to produce seed. Such are the red clover, salvia, larkspur, and some orchids.

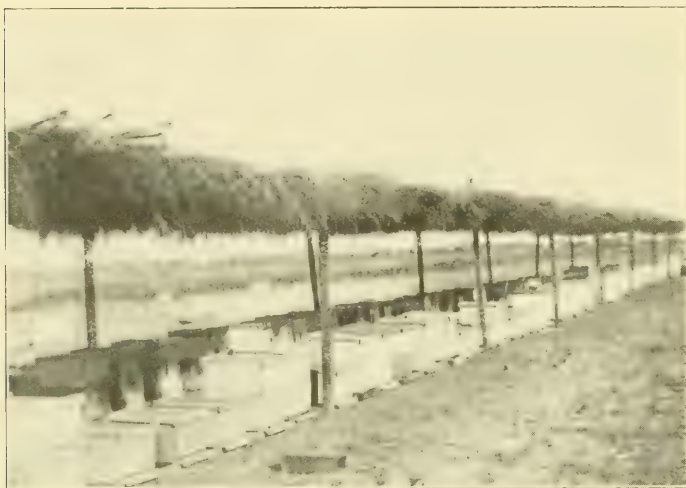
Irregular or one-sided bee flowers occur in large numbers in the violet, pea, mint, and figwort families. The species of the violet family consist chiefly of bee flowers, the general form of which is familiar to every one. One warm clear day early in May I found the round-leaved yellow violet (*Viola rotundifolia*) blooming luxuriantly beneath an old beech tree. Bumblebees, as well as smaller bees belonging to the genera *Notomada* and *Andrena*, were flitting about busily from flower to flower. On the other hand, according to my observations our wild blue violets are very sparingly visited by bees, and are often infertile. Perhaps this is the reason why many of the species, besides their showy blossoms, produce small green flowers close to the roots, which never expand but are very fruitful.

CLEISTOGAMIC FLOWERS.

The beautiful and richly variegated varieties of the pansy (*Viola tricolor*) have been



A. F. Wagner, El Centro, Cal., pioneer bee-keeper and bee-inspector. Mr. Wagner began 26 years ago when a boy, and has worked with bees in various parts of the country. He now has 600 colonies divided into six yards.



One of the apiaries of A. F. Wagner, El Centro, Cal.

produced partly by selection and partly by hybridization. The corolla may be pure white, yellow, red, blue, purple, or black, or there may be manifold combinations of these hues. These striking diversities result from various mixtures and modifications of two pigments contained in the epidermis—violet-colored sap and yellow granules. In the pansy the spur at the base of the lower petal contains the nectar. The anthers lie close together, forming a cone, into the center of which is shed the dry pollen; and directly in front of this cone stands the stigma, on the lower side of which there is a flexible liplike projection. To reach the nectar a bee must run its tongue through the center of the cone of anthers; and when it is withdrawn the grains of pollen cling to its moistened surface, while the lip of the stigma bends it away so that self-pollination is prevented. But when the proboscis is inserted in another flower a portion of the pollen is lodged on a receptive part of the stigma where it soon germinates.

The pea, bean, clovers, vetch, locust, and a host of leguminous allies, are grouped together in the pea family, or *Papilionaceæ*—a name derived from the Greek word for butterfly, because of a fancied resemblance of the flowers to that insect. All of the 5000 described species appear to be bee flowers, though it is claimed that a few species are butterfly flowers, and at least thirteen species are known, which, in the absence of bees, are infertile. For the most part nine of the ten stamens unite to form a tube, at the bottom of which lies the nectar, if present. Four of the petals interlock around this tube, while the fifth, called the standard, is broad and erect, and brilliantly colored to attract the attention of insects (see a flower of the sweet pea). In order to obtain the nectar, a bee rests upon the two lateral wing petals, which act as levers, braces its head against the standard, when, if it is strong enough, the keel is depressed, and it

may introduce its tongue in an opening at the base of the staminal tube. In this family the pollen is applied to the under side of the bee's body in four different ways: It may escape through a valve, or it may be pumped out or brushed out, or there may be an explosive arrangement.

But what if it is not strong enough to depress the keel? Then it does not get the nectar. Notwithstanding their beautiful hues and honeylike perfume I have never seen the flowers of the sweet

pea (*Lathyrus odoratus*) visited by bees, and this is also essentially true of the garden pea (*Pisum sativum*). Why is this? So strongly are the petals locked together that none of our bees appear able to depress the keel and obtain the nectar. Doubtless in their transatlantic home (for neither species is endemic in America) there are bees strong to push open the flower. But as both of these bee flowers are easily self-pollinated they are very prolific, even in the absence of insects.

Many of the flowers of the pea family, in fading, undergo a change in position and color. In the white clover the white central flowers contrast with an older outer ring of rose-colored flowers. In the yellow clover the newer flowers contrast with a ring of chestnut brown. In the wild vetch (*Vicia cracca*) the older flowers bend downward and turn from violet blue to dark purple, while the purple flowers of *Desmodium* become green in withering. In this way the bees are enabled to determine the older, nectarless flowers which have been pollinated, from the young flowers which have not yet been visited.

In the mint family (*Labiataæ*) and figwort family (*Scrophulariaceæ*) the flowers are two-lipped, and often bear a crude resemblance to the heads of reptiles and other animals, as is indicated by such common names as snapdragon, turtlehead, dragonhead, painted cup, beardtongue, and monkey flower. Many of the larger flowers are pollinated exclusively by bees, not a few being bumblebee flowers; but fly flowers and hummingbird flowers also occur. In these families the pollen, in many species, is placed on the back of the insect and not on the under side.

The brilliantly flowered snapdragon is a bumblebee flower. So firmly are the lips closed together that the smaller bees can not force them apart, and thus the nectar is protected for the rightful guests. But as

the flowers grow older, the lips often part slightly, and then the smaller bees are able to force an entrance.

Another bumblebee flower is the turtlehead, which grows along the banks of streams and in marshes. The large white flowers rudely mimic the head of a turtle. Though I have watched them for many hours and on many different occasions, I have never observed them entered by any insect except bumblebees. Sometimes a wasp (*Philanthus solivagus*) will fly from blossom to blossom, examining the lips for nectar, but it does not possess sufficient intelligence to pass between them. The mouth of the flower is so small that a bumblebee sometimes finds difficulty in entering, and flies away to another flower with a larger opening; but once inside there is an abundance of room, and I have seen one of them turn completely around within the corolla. I once placed several flower clusters of the turtlehead in a glass of water a few feet in front of a hive; but of the many bees constantly coming and going, not one of them entered a flower. But presently, notwithstanding their unusual position, the bumblebees found them, and one of them visited every flower. Why did the honeybees almost completely ignore these blossoms, while the bumblebees paid them so much attention?

It will be remembered that, in the pea family, by means of various devices the pollen was placed on the under side of the bee's body; but in the mints and figworts it is deposited more frequently upon the back of the insect. In the turtlehead the four heart-shaped anthers lie well forward in the angle formed by the sides of the upper lip. Their inner faces are applied together to form a single chamber or cavity into which the pollen, when ripe, falls. The contiguous edges are densely woolly to protect the pollen and to prevent the relative displacement of the anthers by connecting the first pair above and the first and second pairs at the sides. When a bumblebee enters the flower it spreads apart the arched filaments opening the pollen receptacle and covering the thorax with fine dry grains of pollen.

The marvelous adaptations of flowers for effecting pollination, both by their variety and ingenuity, fill us with astonishment, and occasionally they surpass the bounds of the wildest imagination. The opening, maturity, and fading of the flower, the various movements of its organs, the allurements of color, odor, and nectar, and the behavior of the insect guests, which may number from one to two hundred, afford an endless field for observation. Flowers cease to be merely bright bits of color in the landscape when we know their life histories, their rivalries and tragedies; and—yes, their comedies we see as upon the stage reflections of our own experiences. There is no more fascinating study than entering the secret chambers of these bright-hued floral edifices which adorn our fields and gardens, probing the mysteries which there confront us. But we should seek the living blossoms.

"Each one of the beautiful flower faces," says Herman Mueller, "which we were wont to marvel at with a sad feeling of resignation as so many mysteries for ever veiled now looks upon us inspiring hope, and stimulates us in friendly wise to cheerful perseverance, as if it would say, 'Only venture to come to me, and in true love make yourself acquainted with me and all my conditions of life, as intimately as you may, and I am ready to let fall the veil that hides me, and trust myself and all my secrets to you.'"

Think of all these treasures,
Matchless works and pleasures,
Every one a marvel, more than thought can say;
Then think in what bright showers
We thicken fields and bowers,
And with what heaps of sweetness half-wanton May.
Think of the mossy forests
By the bee birds haunted,
And all those Amazonian plains, lone lying as enchanted.

But all bee flowers are not one-sided (*zygomorphous*). They may be funnel-formed, as in the gentians, or urn-shaped, as in the checkerberry, blueberry, and its allies, or even wheel-shaped, as in the common borage, or regularly spurred as in the garden columbine.

It is a remarkable fact that bee flowers are more often blue than any other color. Let us look at the colors of these flowers in the Northern States. Of 34 species of violets, 17 are blue, 4 blue-purple, 6 yellow, 7 white.

Of the 197 species belonging to the pea



Curt Lundgren, Stockholm, Sweden; eight months old; has never eaten common sugar. His diet has been oatmeal porridge and honey; and from his first hours his milk was diluted with honey. This is great talking evidence as to the nourishing quality in the honey.

Hartford, Ct.

ALEXANDER LUNDGREN.

family, 24 are blue, 88 blue-purple, 13 red, 33 yellow, 39 white. Of the 120 species of the mint family, 33 are blue, 47 blue-purple, 12 red, 4 yellow, 24 white. Of the 113 species of the figwort family, 28 are blue, 32 blue-purple, 7 red, 33 yellow, 13 white. As for the gentians, their blueness is proverbial, and has been well described by Bryant in his lines "To a Blue Gentian."

Blue, blue, as if the sky let fall
A flower from its cerulean wall.

On the other hand, neither bee nor blue flowers occur in the pink and rose families. In the immense orchis family, in which bee flowers are of comparatively rare occurrence, there is only one blue flower, *Vanda cœrulea*, of India. In this family red seems much easier to develop than blue. It should be added that, when two or more species of bee flowers, belonging to the same genus, blossom simultaneously in the same locality, they are frequently unlike in color, as red, white, and yellow in the clovers. This diversity of color facilitates the efforts of the bee to remain constant to one species.

If you ask me why bee flowers are so often blue, I shall be compelled to admit that I do not know with certainty. It is a problem that still awaits further study. Some naturalists say the bees prefer blue to every other color, while others claim that it is merely an incidental result correlated with the high specialization of the flower. For example, in the animal kingdom, white cats (if they have blue eyes) are nearly always deaf, but no one knows why.

Bee flowers are usually marked with spots or lines called "nectar guides," which point out the way to the nectar. In the snapdragon the palate is yellow; in the pickerelweed there are two bright-yellow spots on the middle lobe of the upper lip; in the turtlehead the white corolla has reddish lips. The flower of the hedge nettle (*Stachys erecta*) is yellowish white, with the border of the upper lip marked with two purple stripes, and the lower lip purple-spotted. The flower of the dead nettle (*Lamium album*) is large, white, or sometimes rose-colored, with the under lip pale yellow, marked with olive-colored dots; while the flowers of the hemp nettle (*Galeopsis tetrahit*), so common in waste places, is purple with a pathfinder on the lower lip of a yellow spot crossed by a network of red lines.

Finally, notwithstanding the industry and immense numbers of the honeybee, there are no flowers adapted to this species alone. Why should there be bumblebee flowers, but no honeybee flowers? Should we not rather expect the reverse? But on inquiry into the economy of the honeybee the reason is evident enough. Our domestic bee requires large quantities of stores, and in order to obtain them it must visit a great variety of flowers throughout the entire season. For this purpose a tongue of medium length is far more useful than a longer one. If the tongue is very long the nectar in open, wheelshaped flowers, like the strawberry and basswood, can be sucked

up only with difficulty and delay. To be sure, they would be able to obtain some nectar now inaccessible, as from bumblebee flowers like the red clover, or from moth flowers like the climbing honeysuckle, but this would not compensate for the disadvantages sustained. If a longer tongue would have been beneficial to the honeybee, Nature would have long since developed one. Apiarists can not improve on the tongue of the honeybee, nor can they produce a permanent strain of red-clover bees. Taken as a whole, and under all conditions, the tongue of the honeybee, as it exists, is much better adapted for the work to be done than any that can be produced by artificial selection. But there would seem to be no reason why a variety of red clover with shorter tubes should not be obtained by selection, if hybridizing with the forms with longer corollas can be prevented.

Waldoboro, Maine.

BEEKEEPING IN BULGARIA

BY NICHOLAS CHR. BARACKOFF

It is about nine years since I first became acquainted with GLEANINGS, and since that time it has been my guide-book on bees. I am pleased with it, not only because of its teaching in all branches of beekeeping, but because of "Our Homes," which gives me much encouragement in my Christian life.

I have endeavored to spread the use of the American Langstroth hive in our country; and, although I have run against considerable opposition, I think that this hive will soon be generally used. I also do what I can toward writing about American methods for publication; and I have translated much from GLEANINGS to encourage our beekeepers.



Dimitre Panteheff, Nicholas Chr. Barackoff,
Dolina-Bania, Bulgaria.

All Slavic states of the Balkan Peninsula in Europe have formed a Slavic beekeepers' association which has an annual meeting every year at different capital cities of the Slavic states. The first meeting was in 1910, at the capital city of Bulgaria. The second was in Serbia, at Belgrad; and the next one, which will be in 1912, is in Rus-



One of J. C. Dickinson's yards at Valdosta, Ga.

sia, at Moskow. Among the various Slavic states, Bulgaria takes the first place in beekeeping, because our beekeepers are always ready to learn.

In the photograph, the gentleman on the left is my teacher in beekeeping, Dimitre Pantcheff, and the other is myself. Mr. Pantcheff has 250 colonies in hives of the Dadant pattern, but he intends to change them to the American hive of Langstroth dimensions.

Dolna-Bania, Bulgaria, Europe.

ITALIANS VS. BLACKS IN GEORGIA

BY J. C. DICKINSON

In the spring of 1909 I took a severe case of bee-fever, and cured it by buying 22 hives of black bees and transferring them to Danzenbaker hives. At this time I have 56 hives of blacks and 4 Italians, 3 of which I raised myself. I gave a frame of honey and \$1.00 to a man in the city for a frame of Italian brood; placed it in a strong queenless colony, and grafted part of the queen-cells on two other frames. I made a Danzenbaker hive into three apartments; carried it back to my city friend's Italian yard, with the result named above.

My Italians produced last season four or five times as much honey as the blacks in

the same yard, although the season was a failure from a financial point of view.

Valdosta, Ga.

BEEKEEPING IN THE CUMBERLAND MOUNTAINS OF KENTUCKY

BY J. S. JOHNSON

This mountainous region seems to be an ideal place for bees. There has never been a season in my recollection when the colonies have not made stores enough for winter, so it seems strange to me to read about those who have to feed for this purpose. It is true that we do not get a large surplus oftener than once in three years; but there is always some surplus each year.

The main sources of honey are blackberry, clover, sourwood, and goldenrod. Then we have a number of other plants and trees that furnish enough nectar for bees to build up on, such as blackgum, chestnut, fruit trees, black locust, and summer heartsease.

One or all of the flowers named above will furnish nectar for the bees each season. I have never known all of them to fail in one year, and so we have more chances for a crop than beekeepers in localities having only one or two resources.

I will give a brief description of last season. The fruit bloom yielded the last of April; and just as that was over, black lo-



Skunk caught in the apiary of Carl Vollmer, Columbus, Montana.

cust began to yield; then wild blackberries, which lasted until the clover season. In the meantime sourwood, chestnuts, and sumac lasted until the middle of July, making one continued flow from April 20 until July 15. From the middle of July until the middle of August we have a dearth. Then heartsease and goldenrod last until the frost comes. I forgot to mention poplar and basswood. The former is still plentiful in the mountains; but the latter is more rare, as many of the trees have been cut down, and the stock eat the second growth, so it is fast becoming extinct in some places. Where there are still virgin forests it still abounds, but it yields only about every fifth year. The stock care less for poplar.

There are no apiaries near me except those of farmers who keep a few colonies to furnish honey for their own use. The truth is, no one in these mountains knows any thing about the inside workings of a hive. I have always delighted in bees, but never had read any thing on the subject until one day I was looking over a government pamphlet on good roads, and saw in the index an address from which I could obtain some literature.

The study of bee culture has given me a new field of thought. It seemed to me when I had read these helps that I had been asleep thirty-five or forty years; but, coming at a late hour, I have the experiences of others to profit by. After I had skimmed the whole country for literature two years ago I began the bee business with two colonies of black bees in log hives.

I now have fifteen colonies in movable frames, all Italians except one, and all full of stores gathered from the kind of goldenrod that is spoken of in the A B C as being

very rare and having silver-like flowers. One colony stored 50 lbs. of surplus from this plant, and I took it off Dec. 25. For a description of this flower see page 666, Nov. 1. In 1910 and '11 the bees gathered sufficient honey to winter on, and good colonies gave a surplus of about 30 lbs. of comb honey. The honey is of a good quality and of a golden color. There is nothing where it grows that beats it.

There is a piece of land within a mile of my apiary that was cleared only a few years ago. It is situated up the creek in a hollow to the left. In order to go straight to the field a bee must fly over a mountain; but last fall the bees followed the creek until near the mouth of the hollow, and then turned to the left, making nearly a right angle. At one point on the route there was a small knoll; and if one stood on this knoll the laden bees would strike his hat. It seems that all the bees in the yard were going to this field. If it would pay to sow any thing for the bees it would be this plant. It will grow in any soil.

I make my own hives the standard size, with eight frames. I think they suit me best, from the fact that our climate in the mountains is more moderate than in similar latitudes, because the prevailing winds are broken.

Langnau, Ky., Jan. 25.

CAUGHT IN THE ACT.

BY CARL VOLLMER.

Early one morning last August I took a stroll through my apiary, and saw the tracks of some animal on some of the white-painted alighting-boards. Bending down to examine them more closely I was surprised to see the bees boiling out of the hive. I thought a rabbit might have hopped on the board and stirred up the bees, but wondered why he had selected such a place. Late that evening I was sitting on the porch of my cabin when I heard a scratching noise underneath. My first thought was pack-rats; but that could not be, because a large bullsnake had his camp under the house, and it would not be healthy for a mountain-

rat to make his home there. Without making any noise I reached for my rifle, and waited. Soon the digging started again, and in a few moments a sleek skunk emerged. I did not want to kill it right there, so I let it go a little way before I fired. Well, it was too dark to shoot, and I missed. The skunk started for his hole, but I headed him off. I guessed then what had been disturbing my bees, and so I set a trap in front of a hive.

The next morning I had not caught any thing; but on looking around I found tracks before some other hives. Borrowing some traps from a friend I set about half a dozen, and the other morning I found one trap sprung and a chicken leg in it. Poor biddy had gone there during the day, got caught, and the skunk had eaten her. I took up all the traps during the day and reset them at night, baiting one with the chicken leg, and in this trap I found the thief next morning. The bees in the hive were quiet; but when I got as close to the skunk with the camera as I dared he started to back up to the entrance of the hive, and the fight was on.

That fall I caught eleven skunks in front of the hives, and have had no trouble since. Skunks are easily caught, as there is no need of hiding the traps nor even baiting them, as one has to do for most other wild animals.

Columbus, Mont., July 1.

[Occasionally we hear reports of damage done by skunks. They seem to delight in scratching at the entrance, and then devouring the bees as they come out. It is seldom that any serious loss is noted, for the animals, as our correspondent states, are easily caught.—ED.]

A START WITH BEES ON A NEW JERSEY TRUCK FARM

A Detailed History of Some of the Mistakes Made the First Few Years

BY WILLARD B. KILLE

Beekeeping on a large scale is a business in itself; but I believe bees can, in a limited way, be made quite profitable on many farms where at present none are kept. Many are deterred from keeping bees simply through fear of being stung; others because they know nothing of the business, and hesitate to start.

Our first experience with bees was not exactly a pleasant one. Father, believing bees beneficial, and worthy of a place on the truck farm for the purpose of pollination, purchased a colony in an old box hive. It arrived at night. While sitting around the table before bedtime, two youngsters fired questions about bees faster than a whole corps of present-day bee-experts could answer them. Among other things we learned from a story told by the hired man that "natural beekeepers" could pick up bees barehanded, and that every colony had in

it one very remarkable bee called the queen, and that she was "boss" of them all. That night in bed we boys thrashed it over and decided that we were "natural beekeepers," and that our first business the next morning would be to capture that wonderful "lady bee," or queen, and display her to the rest of the family, thus demonstrating our prowess as beekeepers, and laying claim to our fitness for taking full charge of that colony as well as its future offspring.

Thus inspired we sallied forth the next morning to execute our well-made plans. Being older I volunteered to catch the bees in groups of five or six as they emerged, and to pass them to my brother, who was to examine them and locate the queen. But, alas for worthy motives and well-laid plans! I caught the bees. How many, I don't know—neither does my brother. He stopped neither to count nor console, but rushed pellmell to the house and hid well away from the bees, from my own howlings, and from mother's scoldings. It was a sad experience. That house held two wiser and more thoughtful boys. But it taught its lesson.

After that experience we felt perfectly willing to let father be beekeeper. We were interested at swarming time when he hived the new swarms in boxes similar to the old. We were also on hand with good appetites when any surplus honey was secured. However, the quantity was usually so small we felt but little sorrow when the bees got what my father called a "case of millers," and died, although at the time I failed to see why the bees did not drive the millers away by treating them as they did me.

The millers did good work—not one of father's colonies survived; yet there was no talk of securing more to replace them until about four years ago when all the bees in the neighborhood seemed to have contracted "the millers" and died. Then we noticed that our cantaloupes, watermelons, cucumbers, squashes, etc., were not setting fruit as they did formerly. We also observed that bees were seldom if ever seen working in the blossoms of these and other vegetables, while formerly the fields had been full. These facts made evident the necessity of having bees in the immediate neighborhood, so we determined to try again.

This time my brother, then in grammar school, having read in a farm paper that some people were making honey from the sale of honey, and also having partially forgotten his former experience, which was not as painful as my own, he determined to buy some bees; and to make them profitable, not only as pollinizers but as honey gatherers. He did not buy any, for our uncle, who had three colonies in box hives, presented him with a colony. This was placed on a stand of four bricks in an out-of-the-way place under a peach tree. Then he bored four holes down through the top of the hive and covered them with a weighted board. All was done on a cold day, when bees were not flying. He also made an 8×10-inch box. He

planned to remove the board covering the holes in the top of the hive as soon as honey began to come in, and place this 8×10 box over it to be filled with honey.

This was in the winter of 1907. My brother was a freshman in high school. I went to New Brunswick to take a short course in agriculture, and there something happened. We had special illustrated lectures on Saturday mornings. Two of these were on bees and beekeeping, and were delivered by Dr. D. Everett Lyon. Previous to this I had known in a general way that bees were sometimes kept in patent hives, and that there were a few people making a living from bees; but I had no idea of the size of the business nor of its vast possibilities. In fact, I had no knowledge at all of modern methods as practiced by our best beekeepers. To say that I was surprised at some of the statements and views during those two lectures would be putting it mildly. There were views of modern dovetailed hives filled with frames, and showing how they could be lifted out and examined while the bees were on them; neat supers to take the place of the old-fashioned top boxes filled with honey in one-pound sections—just the right size for table use; machines that would throw the honey from the combs, and leave it to be drawn off as a clear clean fluid free from wax particles; the different breeds of bees, and comparisons showing wherein the Italians were superior to the black bees; and also the buildings, hives, and apiaries containing hundreds of colonies of bees belonging to many successful beekeepers. These things were highly interesting, and I began to think of what might be done with my brother's colony, when some more views were shown illustrating bee demonstrations. The things those people did with bees was certainly marvelous. I considered that it would simply be suicide to attempt those things. To put it honestly, I fear I did not believe Dr. Lyon's statements concerning those demonstrations, even though he is, I believe, a minister of the gospel.

I came home in the spring, told my brother what I had seen and heard, and got him interested to the extent of sending for the A B C book. Father laughed at the idea of spending money for a book on bees; but when it came his ridicule was changed to wonderment that so much could be written about so small a thing as a bee. "Why," he said, in speaking of it to a neighbor, "it's a regular encyclopedia; and to think it's *all* about bees! Why, if those boys master all the things in that book they won't need to keep bees or farm either; they'll be scientists." We are not yet scientists, but that book was gone over and studied, especially by my brother, at every spare moment. So also was GLEANINGS, for which he soon subscribed.

When reading we found some things, in the light of our previous knowledge and experience, quite hard to believe. After making due allowance for exaggerated statements we still found that a surplus of 50 or

75 pounds of honey per colony was not considered a heavy yield at all; yet no one in our own neighborhood had ever seen such yields from box hives. Where was the fault? Was it the fault of the box hives, the bees, or the beekeeper? We determined to find out; if necessary, by experience. By making a start in a small way, there would be little to lose and much to gain in experience and knowledge if not in money; so an order was sent in for an eight-frame 1½-story hive suitable for comb honey. It was ordered nailed and painted, and was fitted with 4¼×4¼×1½ plain sections with foundation starters. An examination upon its arrival convinced us we did exactly right in ordering our first hive already nailed together, rather than purchasing in the flat and nailing the parts ourselves.

This was in the spring of 1908. My brother's colony in the box hive was in good condition. At his request I bought a half interest in that and we went into partnership.

When the trees began to bloom the bees flew out in constantly increasing numbers, and my brother expected to see a swarm each night on coming from school. We were all given special instructions to leave the swarm until afterschool for him to hive. Well, one hot day at noon out came the swarm—a big one too. It settled on a tree near the ground, and would have been quite easy to hive, but we left it as instructed. Our orders are now quite different. From that day they have been to hive swarms on the jump; for when he came home from school that night no bees were to be seen. Together we searched every tree, crack, and corner on the farm, but never located that swarm. It "lit out" for good.

Some days after our swarm left, our uncle had a swarm settle in a tree; and as he did not care to hive it himself, he gave it to us. The new hive was taken to the tree; and after much difficulty, but no stings, for we were as well protected as the average Egyptian mummy, the swarm was safely hived. But, alas! those bees had not been properly reared, and did not recognize the advantages of their new home fitted with all modern conveniences. They absconded without even leaving their next postoffice address. However they failed to pay for their night's lodging, so my brother and myself felt it to our best interests to locate them. We found them some distance away in another tree. The hiving process was repeated. This time they became permanent lodgers, and stood the trip home to our own yard successfully.

My brother's box hive cast a small after swarm that behaved better than the first, and was housed in a box hive. The bees in the box hives were left severely alone except for putting a top box on the parent hive. But we resolved that the work of the bees in the new hive should be watched, the bees themselves studied, and that we should learn to examine or manipulate them as outlined in the books.

The new hive was opened the first time with great fear and trembling. We had no

smoker, but no one could have been more completely covered and protected. Two thicknesses of mosquito netting around our faces, heavy coats and trousers with sleeves and legs tied down, and with thick hoghide gloves to protect our hands—even with such protection I am afraid I stood quite a distance away when the cover was removed; but after my brother had taken out a couple of frames without serious results I became more bold, and was soon as much interested in the work going on inside the hive as he. It was about three weeks since the swarm had been hived. The amount of work they had done was surprising; but the most interesting of all was to see with our own eyes the eggs, young bees, pollen, the life, the hustle, and other things that had before been pictured only in our mind's eye or on the pages of a bee book. This one glimpse of the workings of the bees inside their home more than repaid us for our work and the cost of the hive, but it did not stop there by any means.

Having survived to tell of one manipulation we found it a less hazardous undertaking to make the second, and it became increasingly less each time.

We found the heavy coats, trousers, and gloves unnecessary. A piece of netting was used over our heads so that an occasional jab might not make us unrepresentable for Sunday-school—that was all. On the second examination we were fortunate enough to get a glimpse of the queen; and after that we found the hitherto unbelievable feat of locating the queen not difficult at all.

In the fall, when we removed the upper story or super from that hive we had 24 sections of honey each, filled clear out to the edge. This wasn't like the yields we had read about, but we were pleased with it nevertheless. And, besides, it paid for our hive. We gave away four sections, and sold the rest for \$3.50. Our hive, together with expressage, cost \$3.25, so we gained 25 cents and some experience besides. The box hive gave us about 6 pounds of surplus honey. This was consumed at home. Altogether the year's experience strengthened our thirst for more knowledge on beekeeping lines, and demonstrated to our complete satisfaction the great advantage of having bees in frame hives rather than in the old-fashioned box hives.

The next year, 1910, we purchased in the spring five 1½-story hives in the flat; smoker, bee escape, and one Italian queen. This was followed in the fall by five more 1½-story hives, 100 sections, and 5 supers for use in 1911. All were paid for, however, in 1910, making a total of \$32.75 spent in bee supplies. The lessons we learned in beekeeping were valuable, and I presume they were practically the same as are common to every beginner. The fall inventory showed that we had six colonies of bees in frame hives (one of these Italians), and two in box hives. The honey yield, due to many causes, chief of which was our own blundering, was only 50 pounds. The highest from

any colony was 24 sections. We sold 41 sections and received \$7.17. This reduced our indebtedness to \$25.58, and we had five empty hives and sixteen supers for use the next season.

This year, 1911, was really the most interesting of all. Having an opportunity to secure seven colonies of bees in box hives at \$1.00 each we bought and actually transferred the bees from five of them to frame hives. We managed it so successfully that I no longer harbor any doubts as to the truthfulness of the statements Dr. Lyon made.

We had but one swarm, and that was in late summer, and was caused by not giving our Italian colony enough room. The queen we had purchased left with almost all the bees, and could not be located. It was a big loss, for we were expecting much from that colony; and its work earlier in the season justified our expectations. But, like many other experiences, it was needed to teach a lesson. The superior work of that one Italian colony, together with their gentleness, induced us to get more Italian queens. Eight were bought and introduced, but not all successfully. There were many experiments and blunders throughout the entire season, but in spite of the blunders we had honey too. One of our Italian colonies with a queen which was introduced in July gave a surplus of 75 pounds. With that as a starter we feel as though we might be able with more experience to get yields some time that will at least half way approach some of those we have read about.

Our expense this season for queens, box hives, and incidentals, was \$18.78, which, added to our indebtedness of \$25.58, left from 1911, made \$44.36. Our sales of honey and beeswax sold direct to consumers amounted to \$57.00. This leaves a balance of \$12.24 in money; and a present inventory shows that we have 11 colonies of bees in frame hives, 9 of them Italians; 3 colonies in box hives; all, with the exception of one box hive, going into winter in good shape, besides 16 supers, several sections, smoker, hive tools, etc., that have all been bought and paid for by the bees themselves.

No estimate can be placed on the value of work and study with the bees. It has all been done at odd times; and, speaking for myself, I can say that it has been a means of recreation and rest from the hustle and hurry that is essentially a part of every truck farm. For my brother in school it gives just the one thing needed to keep up an interest in things outside the schoolroom; and who knows but the bees may do their full share in paying his way through college? Stranger things have happened. However that may be, we have both developed a case of bee fever that refuses to be cured; and if we plan better things for the future it is because we have much faith in that future.

Swedesboro, N. J.

Pyrox fills the barrel with the apples that used to be on top. Write BOWKER INSECTICIDE CO., Boston, for book.

AN ABNORMAL QUEEN BEE

BY JAS. A. NELSON, PH. D.

I send you by this mail a queen. Very strangely, she is half queen and half drone. I have never seen such a queen, and I have never read of one. I will also send you the cell in which she was hatched. She was hatched in 18 days after the colony became queenless; but I do not know the age of the queen that produced her, at the time I took her from the hive. I was sick last June, and my domestic took away the frame to which the cell was attached. If it had been myself I would have written. It was on drone comb. I do not know what will be your explanation of such a thing. I have never seen a livelier queen.

REV. A. FRANCOIS, Dominica, B. W. I.

The queen referred to in this letter was sent to the Bureau of Entomology; and when received she was alive, and appeared to be in good condition. It was planned to introduce her into a colony to test her fertility, but she perished by an accident before this could be carried out. A careful examination of the exterior of the dead queen showed nothing abnormal or unusual in the structure of the head, thorax, or appendages.

The abdomen, however, was of a very unusual shape. Instead of the long tapering conical form characteristic of the normal queen (Fig. 1 D), it was in this case broadly ovate, as Figs. 1 A and C show. Moreover, the three last segments were bent strongly downward so that the outline of the abdomen suggests that of the drone, having a blunt apex, and doubtless was the cause of Father Francois' supposition that this bee was hermaphroditic (having both male and female reproductive organs). A more careful examination of the abdomen disclosed further abnormalities. In correlation with the unusual breadth of the abdomen, the sternites of the 5th and 6th segments are much broader than in the normal queen (Fig. 1 C). They are, moreover, somewhat asymmetrical, as is also the sternite of the 4th segment, although to a slighter degree. Most modified of all is the sternite of the 7th segment. In the normal queen (Fig. 1 B) this has approximately the outline of an isosceles triangle with a small notch at its posterior end. In the abnormal queen (Fig. 1 C)

this plate is so much reduced by shortening in the longitudinal axis that it is almost completely covered and concealed by the sternite of the 6th segment. This reduction of the 7th segment in part accounts for the strong downward bend of the abdomen. In addition the posterior notch is very wide and deep, with a semi-circular outline extending over fully half of the posterior border of the segment. The sting is also slightly abnormal, having a kink about midway of its length.

An examination of the internal organs showed other and more fundamental peculiarities. The poison-glands, poison-sac, and spermatheca (Fig. 2 A) in their size and structure display no apparent abnormalities. The spermatheca was empty, indicating that the queen was a virgin. The digestive tract also seemed to be normal. The sex organs, however, were strikingly modified. The left ovary (Figs. 2 B, OvD) was present, but flattened and bent into an S-shaped curve. Attached to its upper end was a conical opaque whitish mass (Ov) 1.8 mm. in length apparently representing a single egg-tube and seemingly

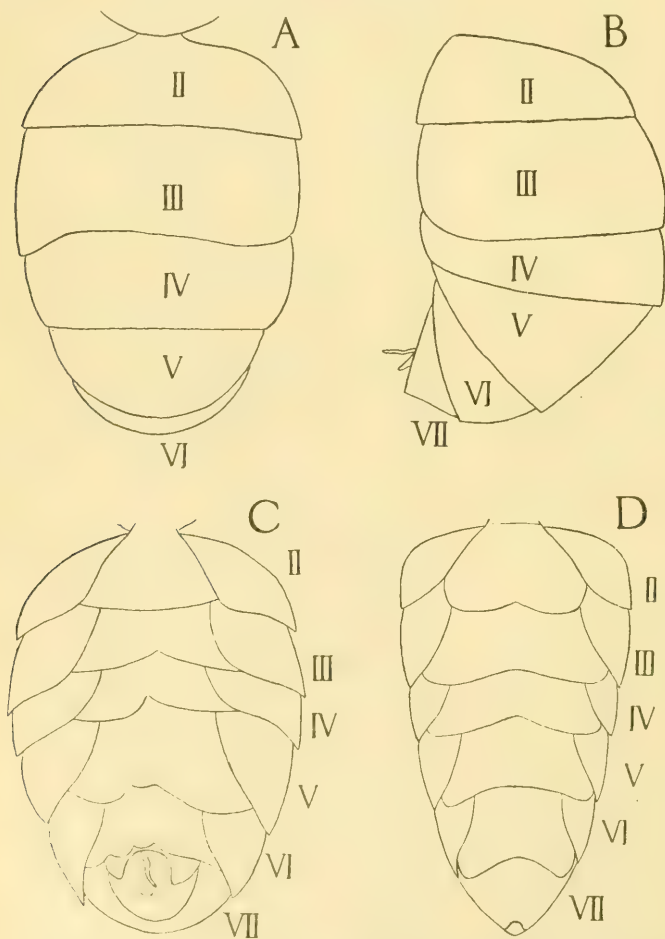


FIG. 1.—A, B, and C, dorsal, lateral, and ventral views of abdomen of abnormal queen; D, abdomen of normal queen, ventral view.

containing only a single egg. As Figs. 2 A and B show, the external openings of the poison apparatus on the one hand, and the spermatheca and vagina on the other, are

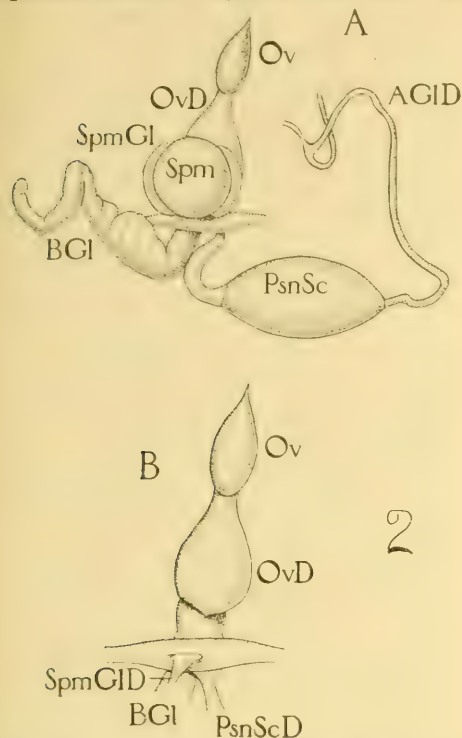


FIG. 2.—A, poison apparatus and sex organs of abnormal queen from above; B, ovary and oviduct of abnormal queen. AGID, duct of acid gland; BGI, alkaline gland; Ov, ovary; OvD, oviduct; PsnSc, poison-sac; PsnScD, duct of same; Spm, spermatheca; SpmD, duct of same.

very close together. In the normal queen this is not the case, since they are separated by a considerable interval which is taken up by the dorsal wall of the vagina. It is evident, therefore, in the case under consideration, that the vagina is very much shortened in correlation with the shortening of the sternite of the 7th abdominal segment.

The cause of the abnormalities recorded here is entirely unknown. The cell from which this queen emerged was, to all appearances, entirely normal. Moreover, these abnormalities can not be related to the sexual characters of the drone or the worker, except in so far as the reduction of the ovaries is peculiar to the worker, but in the latter case they are symmetrical. The queen is not in any way hermaphroditic, but merely abnormal in the reduction of certain parts of the abdominal wall and viscera.

Bureau of Entomology,
Washington, D. C.

[These abnormal cases are very interesting, to say the least, for they show that even nature sometimes apparently makes mistakes.

A short time ago we received a dead bee from one of our subscribers, which had all the appearances of an undersized drone. The head was clearly not that of a worker, the eyes being the exact shape of those of a drone. However, the bee had a sting, which, though it seemed to be rather small, was nevertheless a perfect sting with poison-sac and all.—ED.]

PROBLEMS IN CELLAR WINTERING

House Apiaries vs. Chaff Hives

BY DR. C. C. MILLER

C. H. Gebhardt asks some questions that I will answer without repeating them.

Your cellar, where the bees are, being some distance from their summer stands, toward spring, if the bees become too uneasy, you might set them out near the cellar for a cleansing flight, then return to the cellar till time to put on their summer stands, and no harm would come of it. But if you take them out, as you say, "once in a while," there would be more likelihood that some bees would go back to the location of the cellar when set on summer stands. Better give up the idea of "once in a while." Once is enough, and that toward spring, and not then if you can keep them at all contented in the cellar.

With winter-cases over hives you can not very well use Alexander feeders in spring. At that time it will be much better if you have saved over from the previous year combs of sealed honey, putting a comb near the brood nest, but never between two combs containing brood.

Your mating boxes containing four or five shallow extracting-frames ought to do fairly well to winter over queens in cellar, if each one is well stocked with honey and has a good force of bees.

I don't know whether your bees would fly three miles across the lake to reach those linden trees. If nothing was to be had elsewhere, they might, especially if the wind should come from that direction. I don't think you or I could smell basswood blossoms three miles away; but I suspect that bees are better smellers.

I don't know why it is that your bees did worse in your warmly built building than in chaff hives outside; but it is the usual experience, although some succeed with such buildings. I suspect, however, that the chief trouble is just because the house is so warmly built. When the temperature went down 25 degrees below zero it did not get so cold in the house as outside. On the other hand, when it went up above freezing, those same close walls kept it colder inside than outside. There was a more steady temperature in the house, making the house better in the colder times and worse when the weather moderated; and it is quite possible that the bees stand it better to be outside with the temperature ranging from 25 below to 40 above than to be in a house with the

temperature ranging from 15 below to 30 above.

You have ordered a tested queen for that queenless colony that has only two or three frames of bees; and the question is whether, by proper feeding and keeping warm, you can save it and get it strong for the harvest. May be. It is possible that it may give you the biggest yield of all your colonies. But it is a good deal more likely that neither bees nor queen will live to see the harvest. If that colony is queenless in March, most likely it was queenless long enough before it went into winter quarters so that all the bees are old, and will die off too rapidly in spite of any thing you may do. Nine times in ten—perhaps ninety-nine times in one hundred—the most profitable thing to do with a colony that goes queenless in fall or early spring is to break it up.

SOWING SWEET-CLOVER SEED

The Unhulled Germinates Just as Quickly as the Hulled if Sown Early

BY R. L. SNODGRASS

On page 730, Dec. 1, Frank Coverdale advises sowing sweet-clover seed any time during the summer between early spring, say April 1 and the last week in July. He also claims that unhulled clover does not come up as readily as the hulled. Now, I think if he will take some of the unhulled and hulled out of the same lot or sack, and plant it, he will find that it comes up just as readily as the hulled.

My experience has been that neither one will come up the first year in time to do well unless it is sown as early as February 1 or in March, so that it may freeze a few times before it is warm enough to germinate.

If the seed is put through a good sweat before planting, or if it is stacked before thrashing, and left long enough to go through a good sweat, it will germinate very well; but the safer plan is to sow about February 1, and not before; for if sown earlier there is danger of warm weather that may bring it up, and then hard continuous freezing, which will heave it out.

At this writing we have had several days of damp rainy weather, and any amount of sweet clover has come up from the seed, only to perish. This applies to both the white and yellow (biennial) varieties.

When I cut my crop of yellow-sweet-clover seed the weather was very dry, and at least 50 or 60 pounds of seed per acre was shattered out. I then plowed up this ten-acre field and sowed to buckwheat on the 8th of August; and now with all this sweet-clover seed turned under there could scarcely a plant be found that came up, and we had plenty of rain too.

I secured from this field 40 bushels of yellow biennial-sweet-clover seed, and later 75 bushels of buckwheat, which never does very well here, and especially on thin land.

Now, I think it a good plan to plow up a

field every other year, and sow to something else. Buckwheat can be planted; and after that, winter wheat can be put in, or oats in the spring; but don't seed too heavily, as it may smother the young sweet clover in the spring. By taking this precaution, the clover does much better, grows more rank, and a more even stand is obtained. After a good thick stand, one can not expect to have a seed crop the next season, as the seed crop smothers out all the young plants; consequently it is a good plan to put in something else in the spring or fall, for both a seed and bloom crop is impossible every year. If, by using the harrow, it would come up from the seed which scatters off in the fall, then we could have a seed crop every year, and it would not be necessary to plow it under so often, but it will not.

The yellow variety comes up much earlier than the white—about the 15th of June; and the seed that scatters off that early will not come up either. I think this proves plainly that the seed has to go through a "sweat" or freeze to cause it to germinate.

If Mr. Coverdale or any one else can tell me just how I can obtain a good stand and bloom crop every year I shall be very much obliged.

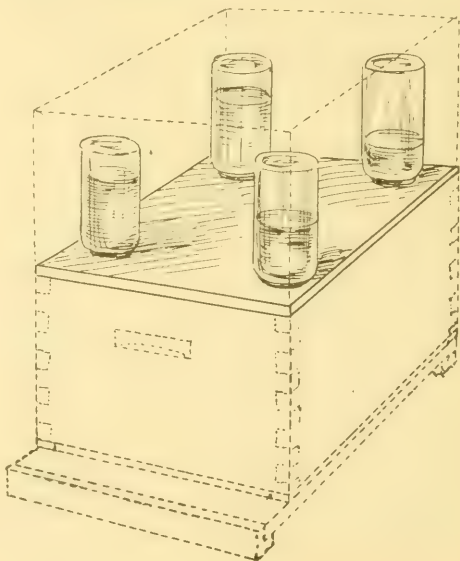
Augusta, Kansas.

FEEDER MADE OF FOUR MASON JARS

BY FRANK BAKER

I had to do some feeding last fall, so I devised a feeder which I like very well. I took a honey-board of $\frac{1}{2}$ -inch lumber 16x20 inches, the same size as the ten-frame hive, and cut four holes for Mason jars with perforated caps, either one or two quart. A good colony will take down four or five quarts in a night. A hive body should be set above the board to hold the jars in place, and to keep robbers away during the day.

Enid, Oklahoma.



Heads of Grain from Different Fields

Beekeeping in North-Central Texas

We find that that magic word "locality" has a wide and varied influence on bees and beekeeping in general. Texas is a large domain, if one will but stop to consider, with a great variety of climatic conditions. Here in the north-central part of the State we rarely have any honey-flow of much consequence until the cotton begins to bloom the latter part of June, thus giving ample time to beekeepers to get every thing in readiness for that longed-for period.

Our first pollen comes from what is locally known as swamp elm, which is now blooming, February 18. Then follows a variety of fruit bloom with wild plum, redbud, oak, alder, ash, and many other trees and vines, all furnishing more or less pollen, and some a small amount of nectar which serves to keep bees busy till the main flow begins; though seldom of late years, on account of the increased number of colonies in this locality, will this suffice to furnish enough for the necessary brood-rearing consequent on swarming. Feeding generally has to be resorted to for the best results.

However, our bees have wintered well this year, and are coming out with abundance of stores, although each colony seems a little short of bees, which probably accounts for the large amount of sealed stores on hand at present.

COTTON-SEED MEAL A SUBSTITUTE FOR POLLEN.

We farmers feed a great amount of cotton-seed meal to our stock. This is a bi-product of the cotton-seed oil-mills—a golden-yellow flour or meal resembling the natural pollen of many plants, and is rich in nitrogenous elements. During the last few warm days my bees have been literally swarming around the shed where this meal is kept, and are carrying away great loads to their hives. There is the usual abundance of old pollen in hives near the brood-nest, as was ascertained by an examination before they located this new find. I had never noticed this before, nor have I ever read of bees utilizing such a substitute for natural pollen; but I should think it a much better substitute than rye or wheat flour, as it is a much richer food—a chemical analysis showing the following: Protein, 48 per cent; fat, 7; crude fiber, 6; nitrogen, free extract, 24, while its fertilizing value is about as follows: Nitrogen, 7.5 per cent; phosphoric acid, 2.8; potash, 1.8. I see no reason why it should not become a comparatively cheap and valuable substitute for natural pollen in regions where there is a natural deficiency of this valuable adjunct to successful beekeeping.

Our honey in this section will, I think, compare favorably in color and quality with that of any other place, as we seldom have any amber honey, all being light, of good body, and of mild flavor. Our section honey won against all competition at the State fair at Dallas last season.

Another word as to locality. Last season I purchased, seven miles away, some bees in Danzenbaker hives with section supers. These, with scant attention, produced on one-inch starters over 100 lbs. of No. 1 white honey per colony, while my bees in the home yard, all of the same race of bees, with better attention, and run for bulk comb and extracted honey, averaged only about 25 lbs. Local showers at an opportune time is the only way I can account for this great difference, as the country is level and the honey flora is practically the same. Such experiences render beekeeping all the more fascinating, each succeeding season offering its new problems and ultimately rendering its valuable lessons.

Trenton, Texas, Feb. 18.

O. SAUNDERS.

Transferring from Box Hives Having Sloping Bottom-boards

I have a problem in transferring that I should like to submit. I have nine colonies in box hives that I wish to transfer in the spring into movable-frame hives; and instead of resting on loose horizontal bottom-boards at right angles to the hive bodies they have their bottom-boards nailed hard and fast at an angle of thirty or forty degrees above a horizontal plane, so that the bees, in going in and out, ascend and descend an inclined plane. The object of the maker of these hives in putting on this kind of bottom-board was to facilitate the re-

moval of wax-worms, dead bees, debris, etc., from the hives. The bottom-board on each of these hives extends three or four inches below the entrance to serve as an alighting-board. Two legs are nailed on the sides of each hive at the rear, so that the hive, when on a level surface, is supported in an upright position by these two legs and the lower end of the bottom-board. The tops or covers of these hives are rough boards nailed to the tops of the hive bodies, with small holes in them to allow the bees to go up into the upper story, or honey-box.

Now, the directions usually given for transferring require the old hive to be inverted and a swarming-box of the same size to be placed on top of it to receive the bees; but it is evident that these directions are not practical in the case of sloping-bottom hives such as I have described above. How would you proceed? I propose to drive the bees from the box hive into the frame hive through a closed passage or runway connecting the two hives—this passage to be a foot or two long, six or eight inches wide, and an inch or two deep—the bottom and sides to be of wood and the top of screen wire. The end which connects with the old hive should cover and inclose its entrance entirely, and be bee-tight—the other end to be inserted into the entrance of the new hive, which should be raised by cleats an inch or two above its bottom-board in order to receive this passageway.

To use this contrivance I would place the new hive on a table or bench fifteen or twenty feet from the stand of the old hive; then remove the old hive. Invert it and set it down close to the table on which the new hive is placed. After connecting the two hives by means of the runway or passage described above I would proceed to drive the bees out of the old hive. As soon as the queen and enough of the bees, say two-thirds, have gone into the new hive it should be removed to the stand formerly occupied by the old hive. I would set the latter close to and immediately behind the old hive, and connect the two by means of a passageway or gangway similar to the one used in transferring as already described. I would put a queen-excluder in this gangway in order to prevent the queen from going into the old hive. I should have stated that this gangway is to have a water-tight metal or wooden cover instead of screen wire, as in the case of the one used in transferring. By this arrangement the bees in the old hive can neither go out of nor into their hive without passing through the new hive; and the bees in both hives can pass freely from one hive to the other.

At the end of eighteen or twenty days I would place a bee-escape in the passageway between the two hives to prevent the bees from returning to the old hive; and if they are not all out of the old hive in 21 days I would smoke or drum them out, remove the old hive, and split it up into kindling—after having saved the combs, of course. Will this plan work or not?

Halls, Tenn., Jan. 9.

J. C. SAWYER.

[We believe you would find it much quicker to pry the cover from the box hive, put a box above it, and drum the bees up into it. It is not essential that the box hive be inverted, the only reason for doing it being that it is usually easier to do it than to remove the cover.—ED.]

Dead Bees in Front of Outdoor-wintered Colonies; the Mistake of Screening Bees in the Hive

Last fall I purchased two colonies of bees in what seemed to me to be old home-made hives which evidently had been used for a long time. The bees seem to be very lively, however; and after keeping them outdoors during the strenuous winter we have had I notice that every bright day about two dozen or more bees come out of the hives and freeze. I accordingly moved them into the stable, where the temperature is considerably warmer, placing the hives so they faced south, and put some wire fly-screen over the entrances to the hives. During the last week the bees have evidently been "cleaning house," and pushed out through the screen several teaspoonfuls daily of a substance resembling brown sand, and they have literally jammed each other up against the screen in their efforts to get out, so that about 25 or 50 seem to die each day. Thinking they might be

hungry I have given them a little syrup through the screen, although upon examination of the frames I found ample stores in the combs. Would you advise me to take the screen off the entrances of the hives and let the bees have access to the stable, and possibly fly out of the door if they wish? or would you recommend some other treatment?

Chicago, Ill.

C. F. CHILDS.

[During the winter you will always find some bees in front of the entrances of colonies wintered outdoors, even when they are wintering normally. However, during this past very severe winter it is possible that there were more dead bees coming out than was proper.

It was all right to take the hives and put them in the stable where there was less exposure; but it would have been better if you had taken them down into your cellar and darkened the windows so that the bees could not fly out. In any case it was a mistake to put wire cloth over the entrances, and we are a little fearful that it may have resulted in killing all the colonies. When bees are confined in a hive in this way it is almost sure to cause trouble. We advise you to remove the wire cloth at once; and it would be better for you to take the colonies down cellar and darken the windows, so as to keep them from flying out.—ED.]

Bees Flying from Six to Eight Miles

I quite agree with Mr. Doolittle in his theory that bees fly several miles in gathering nectar, but can go him one better, for I have traced my bees over six miles, and know they fed still further. I am well aware that a great many people think it is impossible to follow the flight of a bee; but it is a very easy matter at certain times—on a windy day, for instance.

The first time I discovered my bees working so far from home was by accident. I had been working at an out-apiary, and was returning home in the evening. When six miles from home I noticed hundreds of bees crossing the road on both sides, and was much surprised, knowing of no apiary in that neighborhood. In fact, this was in the tules, and there was no residence for miles around. We were having what we call one of our north winds, which blow here at times for three, six, or nine days. I was traveling facing the wind all the way home. The bees were returning home. The wind being very strong for them to fly against, they flew low and slowly. Being in their path of flight, as I was, and traveling in the same direction, it was an easy matter for me to trace them all the way home.

This was my first knowledge of bees going so far; but since then I have traced them a number of times for seven and even eight miles. Most authorities that I have read claim that bees travel only from one to two miles, which is only a theory, according to my experience.

Woodland, Cal.

L. B. CAPPS.

Six Questions

1. When bees are smoked, is the honey with which they gorge themselves lost, or do they replace it in the cells?

2. At how low a temperature in spring is it safe to open and manipulate the brood in the hive without chilling?

3. Is it all right to let the rays of the sun shine directly on the frame of brood and eggs when one is handling them?

4. What is enameled cloth?

5. I have heard it contended that the rendering of combs infected with foul brood is not necessarily done at a high enough temperature, nor the heat continued for a long enough time, to kill the germs, and disease may be spread by the use of foundation manufactured from wax thus carelessly rendered. Is there any thing in it?

6. How far back does foul brood date?

JAMES M. MUNRO.

Slate River, Ont., Can., Jan. 22.

[1. We believe it is not definitely known whether the honey with which the bees gorge themselves when they are smoked is consumed by them or replaced later in the cells. Some of it is undoubtedly consumed, but perhaps a part of it may also be deposited in the cells again. Probably it would depend on circumstances.

2. Opinions differ as to how low a temperature brood will stand for a short time; but it is safe to say that it is unwise to manipulate combs when it

is too cold for bees to fly, unless one or two from a hive are taken out for only a moment or two to make an examination—for instance, to determine the quantity of stores the hive contains.

3. It does no harm to let the sun shine directly on a frame of brood; but at the same time it wouldn't be good policy to leave such a comb exposed to the strong heat of the sun for any length of time on a hot day.

4. Enameled cloth is what is called table oilcloth in many localities.

5. Foul brood has never yet been traced to foundation made from foul-broody combs. There are plenty of other ways, however, in which it is known to spread, and spread rapidly. It does not seem impossible that wax rendered in a solar extractor, and made into sheets by the dipping process without being thoroughly heated, might transmit the disease; but the thorough boiling that the wax undergoes when properly rendered and then refined and sheeted in a modern foundation-factory surely kills all traces of the trouble.

6. It is not definitely known how far back foul brood dates. Some of the very old writers mention brood disease, and it is not unlikely that this was foul brood of one type or the other.—ED.]

The Best Feeder for Colonies in Buckeye Hives

1. For feeding weak stands in the spring, do you consider the Alexander feeder as good as any? Early in the spring, when the weather is cool some of the time, warm syrup can be poured into the feeder each evening without opening the hive and thus losing heat. I got 30 Buckeye hives with sealed covers last fall. I know the Doolittle feeder is recommended; but after the Alexander feeder is in position it seems to me it would be better for weak stands when there are strong ones in the same yard. The bottom-board of the Buckeye hive is 2 in. wide, or a trifle over. In order to use the Alexander feeder it should be 2 inches deep. How much syrup will it hold? and how will the feeder fit the Buckeye hive? I have been troubled sometimes by strong stands robbing weak ones; so I am a little afraid of the Boardman for weak stands.

2. It seems to me the Alexander plan for dividing is the surest and one of the best methods. Do you know of any better way?

3. Which side of the Buckeye bottom-board is better for summer? It looks as though the bees would be inconvenienced in trying to get up on the combs when the wide side is used.

4. Is the Japanese buckwheat as good as any for honey?

New Sharon, Ia.

FRED BRIGGS.

[We consider the Alexander feeder excellent for feeding weak colonies in the spring. One objection, however, is the difficulty of attaching it to the hive, especially the double-walled chaff hive or Buckeye hive. For such hives we recommend the Boardman feeder. There need be no trouble from robbers if you attach it properly. We use the Boardman feeder almost exclusively at Medina, and have no trouble from robbers. We prefer it to the Alexander feeder because it is easy to see when the syrup is gone, and it does not require any special change in the bottom-board or the hive. In cooler weather we use the Doolittle feeder because the bees will not take the feed out of the Boardman feeder after colder weather sets in. We would not advise you to try to use the Alexander feeder in connection with the Buckeye hive.

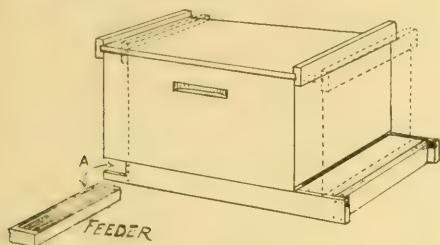
2. Yes, we consider the Alexander plan of forming increase most excellent. We do not know of any thing any better.

3. Some slight change was made in the Buckeye bottom-board of the hive after it was put out. We infer that you have the style that had the narrow entrance on one side and the wide entrance on the other. In winter, use the narrow entrance, and for summer use the deep one. The bees will have no trouble about reaching their combs. If you will watch them while they are flying heavily from the field you will find a lot of young bees hanging down from the bottom of the frames; and as the bees fly into the entrance they will fly clear through and alight on these bees.

4. With regard to buckwheat, we do not consider the Japanese quite the equal of the silverhull or the gray buckwheat for honey; but the Japanese gives a much larger kernel than either the silverhull or the gray. If you want honey we think you will prefer the silverhull.—ED.]

Bottom-board Adapted to Holding the Alexander Feeder

I have made thirty new bottom-boards to accommodate the Alexander feeders. I made the sides three inches wide and let them extend the width of an Alexander feeder back of the hive, with a notch cut out of the top of the side rail the thickness of the feeder. I made the back end piece the entire width of the side rails, and set the ends in the side rails the same depth that I plowed for the floor pieces. I did not halve in the cross-piece at the front, but made it as wide as the bottom of the side rail to the floor board, and set it back three inches from the front end so the nails would not be so apt to split the sides.



The beauty of a bottom-board of this style is, no matter how uneven the ground or foundation of the hive may be, it will always fit up to the hive bee-tight, so no robbers can possibly enter from the back end. The side rails of the common bottom-boards are all thicker than the feeder, and it is a lot of trouble to block the feeders up to fit the hive.

Ponca City, Okla. J. O. WILLIAMS.

Sciatic Rheumatism Cured by Bee Stings

In answer to your inquiry regarding the bee-sting cure for rheumatism, I would say that, previous to my commencing with bees, I was very much troubled with rheumatism and sciatica—so much so that I was for weeks at a time confined to the house. About twelve years ago I bought a few colonies of bees, not thinking, of course, that they were going to cure me of my trouble. But I, like most beginners, was stung a few times. But they never caused much swelling. However, after a time I began to miss my rheumatic and sciatic pains; and as I took GLEANINGS at that time I noticed that a French scientist had declared that he had cured some very bad cases of rheumatism. Then I saw several items in the *Canadian Bee Journal* regarding the sting cure, so I began to think that, perhaps, was the reason I was no longer troubled with rheumatic pains. Since I began keeping bees I have been troubled but very little with rheumatism. I never feel as well as when I am working among the bees and getting a few stings occasionally. My hands are drawn up from the effects of rheumatism; but the pain is all gone. I have come to believe that the acid in the sting neutralizes the uric acid in the blood, thus removing the pain. I have heard of several persons who have had the same experience as I, who believe the stings cured them.

Blyth, Ont., Feb. 21.

ALFRED B. CARR.

[While visiting the Ontario Agricultural College we had occasion to say before the students of the agricultural school that, in our opinion, the bee-sting cure for rheumatism had been greatly overestimated; that we thought, in the great majority of cases, it was of no benefit whatever. We conceded, however, that there were some cases where relief had been afforded. Mr. Alfred B. Carr, who was present, afterward came to us and stated that he belonged to the latter class. As his experience was quite remarkable we asked him to write it up, which he did as given above.—ED.]

Wintering Bees in Chaff Hives

My bees had a fine flight Feb. 20—the first since Dec. 12. They are wintering nicely. The weather during January and up to Feb. 20 has been very cold. The thermometer has several times registered from 20 to 30° below zero.

I have 110 chaff hives, all well packed and warm. I use a piece of old wool carpet over the frames. I

then fold three bran-sacks over the carpet. On top of this I place a bran-sack containing a bushel of chaff or dry sawdust. The wool carpet absorbs the moisture better than any cotton material. I find that bees, as well as people, like the warmth of woolen blankets during cold weather.

The main thing in wintering bees in chaff hives is to keep them very warm on top. I close the entrance, except a space 2 inches long by $\frac{3}{8}$ wide. There has been a good deal said about the extra expense of chaff hives. The difference between a single-walled and a chaff hive is only 30 cts. I have chaff hives that have stood on the same spot for 30 years. Why fuss with paper, and build clamps, when 30 cents extra will buy a chaff hive that will last a lifetime? My bees are blacks and hybrids. Sixty pounds of comb honey per hive has been my average yield year after year.

Fair Haven, Vt., Feb. 22.

I. N. HOWARD.

Questions from a Beginner

1. Are Italians as apt to rob as blacks?
2. Which is better—to jar bees off the frame or brush them off?
3. Will there be any brood in the hive 21 days after the first swarm is cast? If not, wouldn't this be a good time to transfer?

Huntley, Ont., March 19.

CAMERON BLACK.

[1. It depends more on the individual colony than upon the strain of bees or the race; but on an average we suppose Italians are a little more likely to rob than the blacks. However, this is not because of any greater desire on their part to get honey for nothing, but because of the fact that they are more industrious than the blacks, as a rule.

2. It depends altogether upon circumstances as to whether it is better to jar or brush bees from a comb. Briefly, we may say that a combination of the two plans is often the best. It irritates bees much less to jar them off; and the best plan, therefore, is to shake off all you can and then brush the few bees remaining. Some bees are much harder to dislodge from the combs than others. Italians cling tighter than blacks, for instance. Of course, there are certain times when fresh honey is being brought in when it does not do to shake the combs very much, for that would spill the green honey over every thing.

3. It depends on circumstances as to whether you would find brood in the parent colony 21 days after the prime swarm issues. If for any reason the swarm had been delayed till the young queens were practically ready to hatch, one of these young virgins might be mated by the seventh or eighth day following the issuing of the swarm, and would be laying within two or three days afterward.—ED.]

A Sweet-clover Crank

My hive-stands rest on posts two feet high, so as to be above the high-water mark. I live on the bank of the river, and two years ago I lost most of my bees by high water.

I am called a "sweet-clover crank" by my neighbors; but some of them are coming to my way of thinking. I have about one-fourth acre of white sweet clover, and I find that my horse and cow eat it as readily as any other grass. This season I am going to experiment cutting it for hay. Last fall, when the seed was ripe, I felled out about a bushel of seed and gave it to my neighbor. He has a stony pasture of about fifteen acres which he sowed with the seed I gave him.

I believe sweet clover will soon take the place of alfalfa. To insure a good stand I sow oats with it. Of course, different soils and different localities may make a difference.

Wakarusa, Kan.

M. E. MCFADDEN.

More than One Hive Needed on the Scales to Indicate What is Being Done

I note in *Stray Straws*, p. 98, Feb. 15, your answer to Dr. C. C. Miller, where you speak of a scale *hive*. I found out long ago that one hive on a scale is not sufficient to indicate accurately an apiary's losses and gains, as different colonies vary so much when gathering honey, when apparently just as strong. I used to have two colonies on scales. Of late years I have four. I made one for the purpose, which cost about \$5.00, and I find it very satisfactory. I can tell accurately the gain or loss of the apiary. I record the weight each evening when interested.

Williamsburg, Ia.

M. W. HARRINGTON.

Japanese Buckwheat Not Good for Honey

In your buckwheat booklet be very careful not to give Japanese buckwheat too much praise, especially as a producer of honey, it being practically worthless for nectar—here at least. We do not get a good crop of honey from it one year in ten. It frequently gives very large yields of grain, and just about as frequently none; and I have never yet seen such crops of Japanese buckwheat as I used to see when the gray and silverhull were sown, and when you could not get bees enough to gather the nectar. We once had an average of 70 lbs. per colony of section honey and winter stores in a total run of 14 days; but we are extremely lucky to get even winter stores from Japanese now.

BUCKWHEAT NECTAR SECRETION.

Buckwheat does not ordinarily secrete nectar after 11 A.M. Up to that hour honey is seen glistening in the five open nectaries of the bloom. After that time of day, unless a light afternoon shower, followed by murky atmosphere, intervenes (when occasionally nectar is again secreted and the bees go to work), the bees gather but little or no honey.

After once eating pure well-cured buckwheat comb honey, three-fourths of my private customers will have no other, and can not be induced to eat either clover or basswood. It must be well ripened, however. Buckwheat honey has a poor standing in the market, probably because it looks dark, while the demand is constantly increasing from educated honey-eaters. I have made, in the past, two shipments of buckwheat honey as far west as Kansas City, Mo., and generally can not nearly supply the demand.

Frenchtown, N. J., Jan. 18. W. W. CASE.

Value of Buckwheat, Both as a Honey-plant and for Flour

I think that buckwheat is a good paying crop. I sow a small patch every year. I had out about two acres last year, and got enough so that I sold 1250 pounds of flour at 4 cts. a pound, and had plenty for our own use. I used the bran for my cows. It is a very good feed for dairy cows. My bees, too, made a good supply of winter stores, and some surplus for us to eat on our cakes. I sold all of this flour at retail in 25-lb. sacks to my neighbors, and I also sell them some honey once in a while. I sow buckwheat early in the spring in order to plow it under for a fertilizer. It is good for the soil, and I get some honey from it. The buckwheat that I plant for seed is sown the first week in July. I have tried it earlier, but it does not seem to fill when the weather is too warm.

There are none of the ordinary prepared mixtures that will take the place of the real old-fashioned buckwheat cakes for me, and I think there are a great many others who would feel the same way if they were taught what the real thing is; but we must tell them in some way how good these things are, in order to sell our buckwheat and honey.

Lake Cicott, Ind. THOS. C. JOHNSON.

The Papaya, or "Pawpaw," of the South, etc.

Mr. A. I. Root:—I am glad to see that you like mangoes and guavas, and the other tropical fruits. As I was born and lived in British Burma until about ten years ago (I am now 22), I can appreciate your feelings over a good mango. I wonder if you have ever eaten the papaya, or pawpaw. The fruit varies in quality somewhat, but a good one is good. I will send you a few seeds of it from Burma. It fruits under a year old.

Savannah, Ga., March 20. CHAS. E. A. HALE.

[Our older readers will recall that I have several times written up the tropical tree that bears luscious "mushmelons." Those we have here, however, do not often fruit inside of a year, and I am going to take great pains with the seed so kindly sent from British Burma. These trees bear fruit every month in the year, and the fruit is a celebrated remedy for indigestion.—A. I. R.]

Form for Holding the Frame when Wiring

As I have never seen nor heard of any one wiring frames as I do I will try to tell how I do it.

I use a box or table just high enough for a work-bench, and take a board about an inch larger than the frames I intend to wire. I lay one side of this

board on the bench, place something under the other side, so that it will be about two or three inches higher, and then nail it solid. I then get a board one inch thick and saw it the size of the inside of the frame, and nail it on the board I have already nailed down. I put a frame over it and let the frame down until the holes in the frame are just a little above the inside board; then get a strip just large enough to fill the space between the frame and the bottom board (the one that is standing sideways on the box). These are then nailed to the bottom board. I fix a place for the spool of wire about a foot from the bottom board, and nail a small staple near the first hole in the frame, but far enough away so that I can drive the tack in after I have my frame wired. I am then ready to begin wiring. By having the board on the inside of the frame, and cut to fit, it holds the frame solid and square.

Waldo, Ark., Feb. 6.

J. W. HOSIER.

Groove-and-wedge Top Bar All Right

I frequently notice in the bee papers that the wedge-and-groove top bar is condemned. Now, I use that kind of bar, and I think it is the best that is now before the beekeepers if made right. That is where the trouble lies. Some manufacturers make the wedge too small for the groove, and some of the wedges about right for half their length, then begin to taper off to a point. Out of some lots we have had to throw away one-third of the wedges and fasten the foundation with wax. All wedge-and-groove top bars, if made right, work to perfection if directions are followed. The Madary top bar is no good in this locality. If the foundation is not drawn out at once it will shrink and let the foundation fall down.

Metz, Cal.

H. E. THAYER.

Turkeys and Ducks Eat Bees

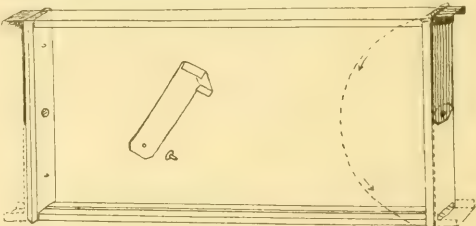
On page 118, Feb. 15, Stephen Anthony makes the statement that turkeys and ducks never eat bees. I beg to differ here, as I had a hive of bees and some ducks in the same yard several years ago, and the bees *did* get eaten by the ducks—so much, in fact, that I had no more bees at the end of the year than I started with in the spring. Several of the ducks would stand in front of the hives and eat the bees. I do not know whether all of them did or not.

Monaca, Pa., Feb. 23.

CHARLES P. BLAIR.

Reversible Frame

The illustration shows my son's (Alex. Crisler) reversible frame. The metal strap is supposed to have a hole near the top, and a corresponding lug on the end bar to hold it in place. It can be used



on any frame of Langstroth size. The strap would be better if made of thin steel; but heavy galvanized iron would answer.

Walton, Ky.

J. G. CRISLER.

The Washington Honey-producers' Association

A cooperative organization known as the Washington Honey-producers' Association was perfected at North Yakima, Feb. 27th, and the following officers were elected from its board of directors: Virgil Sires, North Yakima, President; J. B. Ramage, North Yakima, Vice-president; Robert Long, Yakima City, Treasurer; A. E. Burdick, Sunnyside, Secretary-Manager. It is their purpose to buy their supplies and to sell their product as a unit through their manager.

Sunnyside, Wash.

A. E. BURDICK, Sec'y.

Poultry Department

A. I. Root.

In all thy ways acknowledge him and he shall direct thy paths.—PROV. 3:6.

After the boys had taken four of my ducks, as I have explained, I was obliged to decide if the ducks loose in the main canal; but as soon as I tried shutting them up, the eggs began to drop off. In order to get the benefit of the canal, Wesley and I constructed a fence along the margin of the stream, setting the posts in the rocky bottom. This was possible because there are quite a number of live-oak trees along the margin of the stream that reach out over it. We set the posts near where one of these trees bent over the stream or had overhanging branches. With a crowbar we made a small cavity in the rocky bottom, and then spiked the post to the trunk of the tree or the limbs above. Then by stretching barbed wire and poultry netting on these posts we had a stream, perhaps five to ten feet wide and about one hundred feet in length. Now, when the ducks had access to the full width of the canal it required much less feed, as I have already explained. We concluded that what could not be *cured* must be *endured*. This time the boys have not as yet come on to our premises; but my last and only drake was lost, as I have previously explained, after we had constructed this fence in the creek. The boys broke through the poultry netting and barbed wire and killed my duck as I explained. Now, although I have had many difficulties and perplexities in my life-work, I have also had many surprises, or, if you choose, answers to prayers. A great many times when these prayers are answered I find much *more* has been given me than I asked for or expected. Let me explain how it is in this case. After the boys were arrested I found that I was once more at liberty to let my ducks out into the open canal. I then said to Wesley, "There! we have gone to the expense and trouble of making that wire-cloth fence along the canal, when at present we do not need it," and it stood for some little time unused. When my first incubator brood of ducks got about eight weeks old I felt sure that it would be very much to their benefit, and lessen the amount of food, if they could have access in like manner to the water in the canal. Let me explain that the best authorities on ducks have decided that it is not advisable to let ducklings out into the open water before they are four or five weeks old, or old enough to have some of the real

feathers that take the place of the down that is on them at first.

When six weeks old they are almost fully grown. I felt sure that they wanted water in order to do their best. Now, ducks or especially ducklings need only a very small yard if they have access to water. One day I said to Wesley, "Why, look here; we have got the nicest yard for the ducklings in the world if we just put some fencing across that strip we prepared for the big ducks. In a very short time we had it all fixed. The first day that they had access to this water amply repaid me for all the time and trouble it had caused; and just a few days later we fixed another similar place for the four-weeks-old ducks. See B and D in the diagram. Now about this strip of fence we put along the margin of the stream, about 100 feet long. The young ducks, each brood, have between forty and fifty feet for a swimming-yard. When I let them out of the house in the morning it would do *anybody* good to see the ducks go down into the water. They fairly make the water fly as they go from one end to the other of their yard. The amount of feed needed is also very much less. I can hardly explain this, for it hardly seems possible that they could get a *very* large amount of food out of the running water in this narrow strip. The improvement in their appearance and progress was very marked at once. In fact, after they had been out in this water several days they hardly looked like the same fowls. I will have to explain to you that the salt water at high tide rises up into this water, and I verily believe that a little salt water mixed with fresh water is a benefit to ducks and ducklings. They seem to enjoy it very

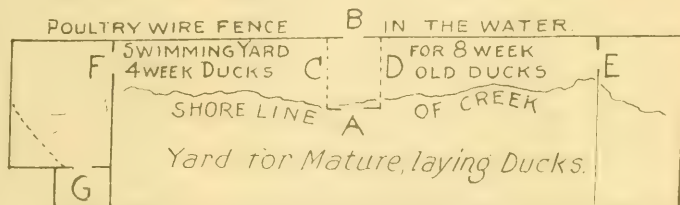


DIAGRAM OF OUR DUCK YARDS BORDERING THE DRAINAGE CANAL.

A, trap-door to admit laying stock into the stream. B, second trap-door, opening into outer canal. C and D, partition fence of netting. E and F, gateway for ducklings. G, duck house for young ducklings.

much indeed. Now, instead of this fence made along the bed of the stream at some little expense being money *wasted*, it is really one of the best investments I ever made. In connection with the above I want to tell you about another thing that I think I can call one of my "discoveries." Anybody who has had much to do with ducks and chickens, or especially with a brood from the incubator, has discovered how difficult

it is to get them to go into their house when a storm is coming up or you want to get them in for the night. By the way, I might mention that the only safe way, so far as my experience goes, for either ducks or chickens, is to shut them up every night at the approach of dusk and let them out again every morning, and I really enjoy doing this. The happiest time in the whole twenty-four hours is in the morning just at daylight, or a little before daylight, when I let my fowls loose and see them happy and rejoicing. In the morning is the time when domestic animals, after their own particular fashion, "praise God from whom all blessings flow," and I think we ought to follow them in this respect. Now to get back to our subject.

Many of you have found how difficult it is to get ducks or chickens into the coop at night, especially when the coop is in the middle of the yard. It is particularly so when you want to give them a little *larger* domicile because of their growth. If your brooder or your duck-house is in the *middle* of the yard you will find it a big job indeed to get them to go in, especially if a thunder storm is coming up suddenly. If you place it up against the fence at one side, you have a *better* chance; but then they will persist in running around behind it instead of going in. If you put it up in one corner it is still better. But even then they will wedge in between the wire-cloth fence and the side of the house, or get behind it or get into the corner. Now, at F and G in the diagram I have explained how we manage it. Instead of putting the brooder or the duck house in the yard, put it outside entirely, the door to it being in the corner of the yard. A better way is to attach the poultry-netting to *one side* of the duck-house and also the same on the opposite side.

If you drive your brood of chickens or ducklings up into the corner they have got to go in the door. A better arrangement still is to have the fence where I have placed the dotted line near G. In this arrangement you have a sort of lane like the letter V, and the building is right at the small end of this lane. There are few things that have given me more pleasure than this arrangement to get my ducks to go in when I am in a hurry. Just another thing about getting them to go into their house, especially if the house is a new one, in order to give them more room. Ducks, more especially the Indian Runners, have a habit of carrying their heads high; and, unless you have their doorway high also, they won't see it. Sometimes I have made an opening in the fence that I thought sufficient to drive them through. This ended in disappointment; for, instead of going through, they held their heads so high they could not see the opening at all. When you make the duck-house, make the door very high. When the ducks are little they can get into it without any trouble. But when you move them into a more commodious coop, according to their growth, you want a high door or they will get their heads up so they won't

see it at all. In this climate no sort of house is needed for protection, more than one made largely of wire cloth with a large open door and wire-cloth sides. In order to manage ducklings as well as chickens, you ought to get well acquainted with them (as I have emphasized before), and *keep* acquainted. In fact, I know of few things more interesting than studying the peculiar habits and instincts of these wonderful creatures.

Now, then, in conclusion, if you want to have fun and profit too from ducklings, you want to give them *running water*. Nothing will answer in place of it. If you want to get an egg from every duck as regularly as the sun rises and sets, give them running water, study their wants, given them plenty of green food, and learn to love them, and they will love you in return and give you *both* enjoyment and profit.

All the fence needed for ducks, and small chickens also, is inch-mesh netting two feet wide. Of course, two-inch mesh, or even three-inch, will hold mature ducks; but for ducklings and small chicks nothing larger than inch will do. As ducks subsist (and thrive) largely on roots of almost all kinds of vegetation, especially in or near water, there is a great saving of expensive grain, and meal for mashies, by having them a great part of their time in "running water."

EGGS THAT DO NOT HATCH; HOW FAR ARE OUR INCUBATORS RESPONSIBLE?

On page 147, March 1, I mentioned that our sitting hens hatched almost every duck egg given them, while the incubator gave a duck for only about half the eggs, etc. As the Cyphers folks at Buffalo, N. Y., had requested me to let them know how I came out with *duck* eggs I sent them a clipping as above, and below is their reply:

Mr. A. J. Root.—Your letter addressed to the Cyphers Incubator Company for the attention of Mr. Farrington has been handed to the writer for attention. This has been done for two reasons: One is, that the writer was formerly an Ohio man, and thought perhaps you would like to receive a letter from a Buckeye boy; and the other is, that we have had considerable experience in operating incubators and brooders; in fact, we have hatched almost every kind of egg that could be mentioned in incubators. We have even hatched alligator eggs successfully, and to do this one must know a little more than the ordinary person does about running an incubator.

If we were in trouble in our apiary we would not hesitate to write you, and know that you could give us information that would place us right; and we appreciate your position, and shall endeavor to treat you as we know you would treat us.

We have read very carefully the article in your "Poultry Department," a clipping of which you have sent us, where you state that there is a big complaint of eggs for the incubator being infertile, and that that recalls to mind the down-east "secret" of starting all eggs under hens before placing them in the incubator.

To place you right in this particular phase, we beg to say that neither the incubator nor the hen has any thing whatever to do with the fertility of the egg—that is, after the egg has been laid. The germ is on the inside of the egg, is placed there before the egg is laid and enveloped by the shell. Now, regardless of where the egg is incubated, whether it is in an incubator, under a hen, or whatever it may be, the mode of incubation has nothing whatever to do with whether it is fertile or not. An infertile egg is an egg that contains no germ; and, regardless of its condition or manner of incu-

bation, it will never develop a germ. The germ must be deposited, and be in the egg before it is laid, and the hatching-machine will have nothing whatever to do with fertilization. However, the method of hatching does have something to do with the vitality; for if an egg is not incubated properly the vitality will be impaired, the germ will die, and nothing will come from its being incubated.

It is just exactly the same as a cell in a bee-comb. If the queen does not deposit the germ, it is infertile and will not produce a bee. We are sure you can see the point we are trying to make, and will understand more fully the principle of incubation from this statement.

We personally never expect to see the time when an incubator will be the equal of the old hen when she attends to the hatching business. If one were to take the results from natural incubation and artificial incubation year after year, the incubator would outclass the hens, because there is a certain per cent of them that are practically worthless as sitters. There is the same difference in hens that there is in people and incubators.

Mr. Farrington gave you some good information relative to operating your machine; but one thing that he overlooked was that the thermometer should have been changed as to its location. The position of the thermometer in the incubator is correct for the hatching of hen eggs; but if you are to incubate duck or goose eggs it is necessary that you lift your thermometer just a trifle. For duck eggs the thermometer should be about $\frac{3}{4}$ of an inch higher, and for goose eggs about $\frac{1}{2}$. The germ in the egg floats to the highest point; and if you are to have the thermometer too low you will be running the machine at too high a temperature. The consequence is that a certain amount of the eggs will not hatch, due to excessive heat.

Instead of operating the machine with the ventilators wide open, as has been suggested, you should close the ventilators down to about half open, and continue this way until they begin to pip. Then increase the heat about one degree, close the ventilators tight, and leave the same in this position until the ducklings have started to hatch out, when you can open the ventilators about half way.

The eggs, in your part of the country, should be moistened; and one of the best methods is to take a clean whisk broom and sprinkle the eggs every morning after they have been aired and cooled; and if in a temperature of 60 to 70, they should be aired and cooled for from five to eight minutes twice a day. If one is at all observing he will notice that, when the old mother duck sits on the eggs and hatches them the natural way, she will leave the nest at certain intervals, take a swim on the pond, come back with her feathers real wet, and hover over the eggs. Besides, the nest is usually built where it is damp and there is lots of moisture. This also assists in supplying a great amount of humidity.

We are acquainted with a poultryman who has made a wonderful success in hatching duck and goose eggs in incubators, and about the 20th and 26th day he dips each one of the eggs in water that is heated to a temperature of 95 to 100 degrees, allows them to remain a few seconds, when they are removed and placed in the egg-tray after being wiped or dried off.

We have endeavored to make our statements clear, and trust that you will understand the directions we have given you. If we can serve you any further, do not hesitate to write us, for we are deeply interested in your particular case, and nothing would please us more than to render you such assistance as would enable you to make an absolute success in hatching your ducks.

Buffalo, N. Y., March 23.

W. C. ELLERIN.

Of course we all agree to the above; i. e., that no hen or incubator can do *any* thing with an egg that has not the fertile germ, and I am very glad to see the writer "take off his hat" to the sitting hen and give her such a high compliment. Perhaps I should not have used the word "infertile" in my heading in that March 1st journal. Since that article came out I have started the incubator again, and again got about a 50-per cent hatch. At about the same time I gave a Bantam hen eleven duck eggs. Of course

she could not well cover them all; but it was done purposely for a test. All started germs promptly but one; but on the 29th day she came off with *ten* nice ducks. I suppose the delay was because she could not keep all of the eggs all of the time warm enough. With my exactly accurate incubator I fear I had them *too* warm, especially at the start, for they were pipped, some of them, on the 24th day, and were all out, except those "dead in the shell," on the 27th. She aired her eggs a long time, especially on hot days (and I tried to imitate her); and while the eggs were pipped and the ducklings poking their heads out of the shells she took a long promenade, as unconcerned as could be. Probably *she* had never read the careful instructions about "how to run an incubator" about hatching time. Now for my question once more: Have we any incubator that will start the germ "*in the egg*" in as many eggs (or as large a percentage of the eggs) as does the sitting hen?

HOW TO MAKE THE CHICKENS "IN THE BACK YARD" NOT ONLY SAVE THE BUTTER (SEE PAGE 147, MARCH 1), BUT THE HIGH-PRICED HAM FOR SANDWICHES.

The above is a "long-winded" heading, I admit; but I couldn't well make it shorter. Well, to get down to business, read the following from one of our old-time friends:

Dear Uncle Amos:—Being a constant reader of GLEANINGS, and interested in every thing contained therein (covers and all), and knowing that you as well as myself are interested in ferreting frauds, I am enclosing herewith a letter received to-day in answer to a letter of inquiry written by myself in reply to their advertisement.

Union Center, Wis., March 12.

ELIAS FOX.

And here is the letter our good friend encloses:

Mr. Elias Fox:—Guess you misunderstood our ad. We got tired of selling our chickens in the open market at ten and twelve cents per pound, and a year ago last fall we figured out a plan that we have used ever since, and are still using, that brings us *twenty-five* cents per pound, *live weight*, for every chicken, *old or young*, that we market, and we market chickens twice a week.

We expect your more or less skeptical opinion; but if you will be shown we will prove to you that our claim is good and that we make good.

We guarantee to refund your money if you're not satisfied. To get our advertisements in the magazines, and abide by the law, we must be prepared to back up our statements, and also be able to show that you can do the same as we are doing, or return your money to you. If you buy our method, and do not think it is worth a dollar of any chicken-raiser's money, write us for your money and we will return it to you.

What we want is to have you try our method. There are so many schemes out to grab off the dollars that we have made the following arrangement with our bank for the benefit of those who are skeptical about sending their money direct to us.

You can send the price of our method, \$1.00, to The Citizens Trust Company, of this city, requesting them to hold it for you thirty days. Notify us at the same time, and we will send you the method and you can try it. If you can not get twenty-five cents per pound, live weight, for old or young chickens, or the method is not entirely satisfactory, ask The Trust Company to return your money and they will do so. We enclose a blank that you can use for convenience. This protects you absolutely. We are doing this on the theory that the majority of people will not ask for their money back if they get value received. CHAS. W. FESTER, Man.

Elkhart, Ind., March 9.

The above sounds fair and liberal, and I at once sent the dollar. By the way, when I was in Portland, Oregon, some years ago, I found the ladies of the church were making and selling little chicken pies at 25 cts. each; and, if I remember aright, I was told a fair-sized chicken made five or six of these little pies, and they sold, too, "smoking hot," like "hot cakes." I wondered if the "secret" was not something on this line. See below, which came in due time:

A. I. Root.—Here is our method: You know that ham, such as is used for sandwiches, costs from thirty to forty cents per pound. We make what we call minced chicken, to be used in the place of ham, for sandwiches. To get it started we make about four pounds. We take it to a restaurant, lunch room, or any place where they sell lunches. We tell the proprietors that we have something that is cheaper and better than ham for sandwiches. We ask him to give it a trial, with the understanding that, if it does not sell, he will be nothing out. We tell him that, if it does sell, we should like to arrange to furnish it to him.

You see a chicken sandwich is pretty good eating. During the fall of 1910 we got 38 cents per pound. Last fall we cut the price to 25 cents, and are still getting that price. We usually make it so that ten pounds of live chicken will mince about twelve pounds. After you have made it a time or two you will know about how the weights will run.

We try to take in a supply on Tuesdays and Saturdays. We suppose you will say, "That is a hot proposition." Don't turn it down, but just try it once. Go out and get the oldest, toughest chicken, and weigh it up; make some according to formula attached, and try it out. We buy chickens of the neighbors at market price right along. We work them up this way, and it goes a long way on feedbills. I assure you. You see an old rooster looks like a springer with this plan. Now, Mr. Root, we realize that there are some people who do not live in a location where they can use this to advantage; others do not want to bother with it. We do not want to take a cent from any one who can not put this to use. If for any reason you do not want it, advise us and we shall be pleased to return your money. All we ask is, if we return a man his money he should forget all about the plan.

OSOLO POULTRY YARDS.

Elkhart, Ind., March 23.

RECIPE FOR MINCED CHICKEN.

Weigh chicken alive. Dress for boiling. Boil until done, and keep covered with water; then take the chicken out and let it cool. Take the meat from the bones and grind through a food-chopper. Weigh the ground meat. Take five crackers for each pound of live weight, and roll fine; then stir into the boiling broth. After this has boiled for a few minutes, thicken with flour as for flour gravy, until it is thick. Weigh the gravy. The weight of the gravy when added to the ground chicken should equal the weight of the live chicken. If there is not enough gravy to make this weight, add boiling water. If there is too much, take out some. Mix the ground chicken and gravy together thoroughly, and season highly. Pour into pans. White-lined granite mixing-bowls are the best. A few trials with this recipe will make you an expert.

I really believe the above is the most valuable "secret" I ever invested in, and I especially admire the vendors for not having any clause about secrecy or giving the plan to your neighbors, etc. They don't say what the sandwiches sell for, but I have paid as high as 15 cts., and got very little real chicken at that. Down here in Florida, at one of the stations, the colored folks are, I am told, making quite a little money by selling a chicken sandwich for a dime, and they are really excellent, too, as I can testify, although they are not "minced chicken." Some of you may think it hardly courteous, to put it mildly, to "give away" this enterprise. To which I reply,

it is folly in this day and age of print to expect to keep out of print any thing of value; and, finally, to reward these people, since *they* are so fair, if any of our readers build up a profitable trade in the "sandwich" line, will they not be fair enough to send the Osolo Poultry Yards a dollar, as I did?

MUSTARD FOR LAYING HENS, ETC.

On page 122, Feb. 15, I spoke of mustard to start hens laying. Here is something further in regard to the matter, which I clip from the *Petaluma Weekly* of March 20, from our good friend L. E. Keyser:

At one time I believed that nothing on earth would make hens lay. Then when some rather worthless pullets were obstinate and refused to lay when I was giving them the best of feed and care I resorted to the "Strikebreaker," and in a very little time they were laying nicely. Right here it occurred to me that, as these pullets were not valuable as breeders, and would never be used as such, it stood me in hand to get all the eggs out of them I could in the shortest possible time, regardless of future results. So we kept them laying all winter, during the summer, and late into the fall, when I thought it best to dispose of them. A sufficient number did not get into good feather at one time to make a shipment, so they were allowed to live, and about the middle of January the "remedy" was applied, and they commenced laying again with the exception of a few which were killed for home use, and laid steadily until disposed of early in September. I doubt if, without the use of a stimulant, these hens would have proven a paying proposition; but as it was, I secured two seasons of good laying out of them.

I have discovered this: It makes no difference how many eggs a hen lays during the winter, she will lay just as many during the spring and summer as though she had been idle all winter, and the winter eggs are all clear gain. If the number of eggs a hen lays is limited, the sooner we get the bulk of these eggs the better. It saves feed. It adds to the expense to feed this preparation; but the additional expense is more than met by the increased production, and it is not necessary to feed the dope all the time. Get the hens started and feed right, and they will keep going. When there is a let-up in the egg yield, feed more dope. This seems to me a logical way to treat hens not good enough for breeders. If they last only one season we know that is all they are good for; and if the hens have any constitution at all they will last two laying seasons, and lay heavily all the time except after the molt.

He also adds the following from a letter he received:

I am at a loss to know whether to approve or otherwise your action in publishing in the *Journal* for Dec. 6 the mustard formula for egg-production. I immediately invested in five pounds of mustard, one pound of saltpeter, one pound of sulphur, diluted with fifteen pounds of meat meal. At that time I was feeding every imaginable tidbit to 400 yearlings, and getting four dozen eggs per day, which hardly more than paid feedbills. In ten days I was getting 12 dozen, and in January averaged 65 per cent for the flock—lame, halt, and blind. Evidently all the *Journal's* subscribers took the bait, for to-day the price of eggs has reached the hitherto unheard-of low price of 24 cts. on Feb. 24.

I have been using mustard during the past winter, and have never had our hens lay so well before. Besides the ground mustard we are now feeding green mustard. A year ago my neighbor Rood had a plant of Florida mustard about as high as my head, with great crinkled leaves, of which the hens were exceedingly fond. He let it go to seed, and my plants were grown from this seed. It is a very rank grower on our sandy soil, and the hens just fight for it. Can we not "kill two birds" by giving them the "mustard tonic" and green feed all at one time?

Gleanings in Bee Culture

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VOL. XL

MAY 1, 1912

NO. 9

Editorial

THE HISTORY OF BEE DISEASES.

THE Bureau of Entomology, Washington, has issued another bulletin, No. 98, by Dr. E. F. Phillips and Dr. G. F. White, entitled "Historical Notes on the Causes of Bee Diseases." This contains a large amount of valuable data that will be interesting and helpful in further research. We presume it can be obtained for the asking. Apply to the Superintendent of Documents, Washington, D. C.

DR. MILLER RECOVERING FROM THE GRIP.

OUR old friend and Nestor of bee-keeping, editor of Stray Straws, Dr. C. C. Miller, has been having a very severe attack of the grip. Two other members of his family have had a similar attack, but we understand they are now all convalescent. Had it not been for the fact that we have had Straws ahead, Dr. Miller's familiar notes and comments would have been conspicuous by their absence in our last issue.

GROUND COBS FOR PACKING MATERIAL.

THERE has been some inquiry regarding the suitability of ground corn cobs for cushions and for double-walled hives. We have made some inquiry and find that this material can be purchased very cheaply from feed stores, farmers' exchanges, mills, etc., as it is used for mixing with feed for cattle, etc. Those who can do so would do well to try this material, for it is a well-known fact that corn cobs will absorb a great quantity of water. Ground cork is used to quite an extent, but of the two we should prefer the ground cobs.

BEE INSPECTION IN CONNECTICUT.

FROM a report of the Connecticut Agricultural Experiment Station, New Haven, we learn that European foul brood has been the principal disease found in the State. In 1910 over three-fourths of the apiaries and nearly one-half of the colonies examined were found diseased. In 1911 only about one-half of the apiaries were diseased, and less than one-third of the colonies were infected. Of the colonies treated in 1910 and

examined again in 1911, less than one per cent were found diseased.

The usual plan of shaking colonies on clean frames and foundation was carried out, and the old hives disinfected. A few of the worst colonies were destroyed; but this was shown to be unnecessary if the treatment is given in time.

The total number of colonies inspected in 1911 was 1571, and the number reported as having European foul brood, 431. The average cost of inspection per colony was 21 cts., or \$323 in all. At the end of the report of inspection of apiaries, an appropriation of \$500 is recommended.

THE UNITED STATES STATISTICS REGARDING BEES AND HONEY; ARE THEY ACCURATE?

IN an editorial referring to the United States statistics concerning the honey business, page 67, Feb. 1st, we gave it as our opinion that they were not accurate in some particulars, adding that the statistics from manufacturers, showing the amount of supplies sold, would indicate that the bee business was on the increase rather than on the decline. The following letter is only one of many, and it explains how and why some of the census figures concerning bees and honey must not be taken too seriously:

Please tell me what the worth of the United States census is to beekeepers.

I was at home when the taker came, and I asked him if he took the bees into account. He said he did not unless their product amounted to \$400 or more. I had about 40 colonies in my yard, and yet they were not taken into consideration.

There are more bees in Massachusetts in smaller apiaries than mine than there are in larger ones, and yet they are not taken by the census enumerator.

JOHN P. COBURN.

Woburn, Mass., Mar. 22.

Before another decade rolls round, the National Beekeepers' Association should have this matter brought before the census people, calling attention to the 1910 discrepancies, and asking for a more thorough canvas of the number of colonies and bees an individual owns. Another thing, bees owned in cities and towns should be included. If the census was taken in the manner spoken of in the letter above, it is

no wonder that the United States statistics do not agree with the data in the possession of the manufacturers of supplies and publishers of bee journals. We have no doubt that the Bureau of Entomology, especially if the present men are still in office, will see to it that the 1920 census is more accurate.

THE VALUE OF HONEY AS A MEDICINE BECOMING BETTER KNOWN.

THAT honey is the base or principal ingredient in many medicines, especially cough syrups and gargles, is a fact already well known. Its value is being appreciated more and more as the following letter will show:

There are two books of authority governing the preparation of medicinal drugs found for sale in drugstores. One is the "Pharmacopoeia of the United States," and the other the "National Formula." The books are prepared by a commission of the American Pharmaceutical Society with the help of government representation. They are revised every ten years, some drugs being added, while others, for one reason or another, are dropped. In the third installment of new formulae suggested for the forthcoming new edition of the "National Formula," three out of twelve proposed additions contain honey. These three are as follows: Compound Gargle of Guaiac, 20 per cent honey; Honey of Rose with Borax, 85 per cent honey; Honey and Borax, 85 per cent honey. Of course honey is mentioned in these books already, but the substantial increase is what interests the beekeepers.

As an illustration of the importance of these books, I know a man who wrote and labored for nearly a lifetime to get one of his botanical favorites admitted in which he had explicit faith, but it was never accepted on account of its doubtful medicinal property.

Galena, Kan.

J. P. BRUMFIELD.

THE NEW GOVERNMENT BULLETIN ON SWEET CLOVER.

We have before us, from the United States Department of Agriculture, Farmers' Bulletin 485, entitled "Sweet Clover," by J. M. Westgate, Agronomist in Charge of Clover Investigations, Bureau of Plant Industry, and H. N. Vinall, Assistant Agrostologist, Bureau of Plant Industry. We do not hesitate to say that this is one of the most valuable bulletins ever issued by the government. Sweet clover, formerly regarded as a weed except by beekeepers, is now being recognized by our government and State experiment stations everywhere as one of the most valuable forage plants for stock that is grown. While it may lack some of the feeding value of alfalfa and red clover it will grow on soils where nothing else will thrive; and, what is more, it prepares the way for other valuable crops, especially alfalfa, by inoculating the soil. Evidently the authors spent not a little time in gathering the material. We would advise every one of our subscribers to send for the bulletin, especially if they live in a locality where sweet clover is regarded as a noxious weed.

It describes the different species of sweet clover as well as the history and distribution of the plant; its adaptability to various soils and climates; how to grow it; the value of the hay; how to cut it; its feeding value

for stock as well as an improver of the soil. Send to the Secretary of Agriculture, Washington, D. C.

This bulletin will do more to correct the old notion that sweet clover is a noxious weed than any thing that has appeared before—especially so as it bears the stamp and seal of our dear old Uncle Sam.

Beekeepers will now have some chance of getting an amendment to the State laws that include sweet clover as one of the noxious weeds.

FRAUDULENT PACKING OF BULK COMB HONEY.

OUR attention is called to the fact that in putting up bulk comb honey in Texas, what is called "chunk honey" is being put up in a manner that is hardly in keeping with the golden rule. The following paragraph, taken from Bulletin 142, by Wilmon Newell, College Station, Texas, to which we referred a short time ago, will explain:

A deceptive method of packing bulk comb honey has recently come to our attention, and it can not be too strongly condemned, both by customers and honest bee-keepers. As explained on a preceding page, bulk comb honey, when properly packed, consists of cans filled *full of comb* honey, the latter cut into just as large pieces as will go into the can. What few openings *then* remain are filled with extracted honey.

Some bee-keepers have, however, adopted the plan of filling the honey-cans *only about one-third full of comb* and then filling up the can with extracted honey. Of course the pieces of comb float on top of the extracted honey; and when the customer takes off the cover the can *appears* to be filled with comb honey. The deception is not discovered until the customer has purchased the can and used out about a fourth of its contents. Such deception is little short of actual fraud, for bulk comb honey usually sells at from two to five cents per pound higher than extracted; and when the customer pays the higher price for bulk comb he is certainly entitled to it, not to a mixture containing 75 per cent of a lower-priced honey.

It did not occur to us that there could be the deception practiced; but it is very apparent that, if the consumers of bulk comb honey like to eat comb honey, they are entitled to have the pail full of comb, and only the spaces filled up with extracted.

WHY WE SHOULD PRODUCE MORE COMB HONEY FOR 1912.

THE firm of Hildreth & Segelken, of New York, is one of the largest buyers of comb and extracted honey in the United States if not in the world. They therefore have unusual facilities for knowing the condition of the market as it relates to the relative production of comb and extracted honey. The very fact that they confirm our statements on the subject as given on page 221, secured through entirely separate sources, and independently of them, gives additional proof that more comb honey ought to be produced this coming season. A word to the wise is sufficient. Well, here is what Hildreth & Segelken have to say:

Mr. Root:—We are just in receipt of your April 15th issue, and note your interesting article on page 221 under heading, "Why Beekeepers should Produce More Comb Honey this Year." Your advice is certainly timely, and we indorse every word you say. The markets are practically bare of

choice white comb honey, while there is an abundant supply of extracted still on hand, with prices declining right along the line. With another good crop this coming season, extracted honey, we dare say, will see lower prices, while comb honey (that is, the better grades) will certainly command good prices, and find ready sale—especially so if the producers will take care in grading and packing.

HILDRETH & SEGELKEN.

New York, April 18.

Read it over once, and then read it again. After that, paste it in your honey-house or in your hat.

Now, then, if you have decided that you are going to produce *comb* honey the coming season, do not make the awful mistake of trying to get along without separators or putting the honey in cheap or poorly cobbled-up home-made shipping-cases that are either too large or too small. If we are ever to restore the comb-honey business to where it was, the sections must be carefully and honestly graded, scraped clean of propolis, and arrive at destination in good order. You can make a quick sale and at the top notch if you will follow these directions—particularly in the matter of grading and packing.

LIVING ON HONEY AND WATER.

ONE of our subscribers, E. L. Sechrist, Clarksburg, California, sends us the following clipping from one of the California papers:

PLACER COUNTY MAN ENGAGES IN FAST ON ACCOUNT OF ILLNESS.

For thirty-eight days A. Thommen, a well-known rancher living near this city, has been fasting, and from present indications he will continue fasting for many days to come. Mr. Thommen does not seem any the worse for his experience—in fact, there are some who think he is improving in health. He states that he is increasing in weight. A few days ago he was in the city, and while at Clegg's store lifted a sack, weighing 140 pounds, and carried it to his wagon.

Mr. Thommen, during his fast, has partaken only of water and two ounces of honey a day. He undertook his fasting because of certain stomach troubles.

Auburn, Cal., Dec. 14.

This is the first time that we have ever heard of one living on honey alone, and we shall be very much interested in the outcome of the experiment. We doubt very seriously whether there is any other food than honey, which, taken in so small an amount as two ounces in twenty-four hours, would give so much strength.

A FREE BULLETIN ON SWEET CLOVER.

Do not forget to send for Bulletin 485, on sweet clover mentioned on another page. It can be obtained free by addressing the Secretary of Agriculture, Washington, D. C. We hope every one of our subscribers will ask for it at once. A. I. Root has just read it, and he is so enthusiastic over it that he will have considerable to say about it in forthcoming issues of GLEANINGS. In the mean time get a copy for yourself and for your neighbor.

We understand that the Secretary will send copies to as many addresses as may be

sent in. Send the names of your road supervisors, and your representative and senator in the State legislature, and write them, saying that you are having a copy of a sweet-clover bulletin sent to them. Request them to read it through so that they can see that sweet clover is *not* a noxious weed; that its propagation should be *encouraged* instead of being discouraged the way it now is by law, that requires the road supervisors to treat it as a weed and cut it down.

WINTER AND SPRING LOSSES TO DATE.

IN our last issue we estimated that, where losses had occurred, the mortality would be about 50 per cent. At this writing, April 25, we fear it will go even higher. Along about the last of March, warm and even hot weather came on, and the bees began breeding strong. This was followed by cold and chilly weather, bringing on severe spring dwindling. The bees, in their effort to save their brood, chilled and died, so that we are hearing of patches of brood chilled to death, and the bees gone. In some localities where the losses reached 50 per cent, the mortality will be nearer 75.

There is going to be a most extraordinary demand for bees. In the extreme North the losses will not be heavy. South of the Ohio River bees have wintered fairly well. We shall be glad to publish free a list of those who have bees for sale in order to help out those who have suffered severe winter losses. It may be that there are some beekeepers who know where they can get colonies in box hives. If you are one of them, we advise you to secure an option on them, and then write us what you will sell them for. Ordinarily, bees in box hives are not worth more than \$2.00 or \$2.50. When freight or express are added, as well as the labor of transferring, \$2.00 or \$2.50 is about all the purchaser can stand.

WINTER LOSSES NOT UNIVERSAL.

Do not understand from what we have said that losses are going to be universal, for they are not. Throughout Canada, Northern New York, Northern Michigan, Minnesota, Northern Wisconsin, and the New England States, the losses will not be heavy. The region between the Great Lakes and the Ohio River is where the principal losses have occurred. There are many beekeepers in the Southern States who doubtless will be able to do their brethren of the North the good turn of putting them on track of bees in box hives. We happen to know of two beekeepers now—Mr. F. B. Cavanagh, of Hebron, Ind., and J. L. Byer, of Mt. Joy, Ont., who are in the market for cheap bees. While Mr. Byer has not lost in wintering, he wishes to "keep more bees."

In the same way we shall be glad to publish a list of those who desire to get bees. GLEANINGS will do all it can to help its subscribers. Indications are still favorable for a good honey year, providing a drouth does not come on in May.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

TETRACHLORIDE of carbon—has any one tried it in this country? and is it better than bisulphide of carbon? [We should be glad to get reports.—ED.]

WHICH IS the right side of a hive? Say a hive faces south; is the east or the west the right side? *I think* it's the west side, but I don't know. [Ask something easier.—ED.]

BALLING. The A B C and X Y Z instructs, "Lift the ball out of the hive and blow smoke on it until the bees come off one by one." To this should be added: "Hold the smoker far enough from the ball so the smoke will be cool. Hot smoke will make the bees kill the queen." But I like better to throw the ball in water.

ACCORDING to a table given in *Schweiz. Bztg.*, p. 467, here are the numbers of colonies of bees per hundred inhabitants in the following countries: Norway, 1.0; Belgium, 1.6; Austria, 3.8; Hungary, 4.2; Germany, 4.6; Denmark, 4.8; United States, 5.4; Switzerland, 6.5. [According to the figures of the last census, the United States would probably drop back a little.—ED.]

IRISH BEE JOURNAL, p. 24, reports a bee-keeper in the Isle of Man who took from one hive in one season 334 lbs., which, at 6d. per lb., would bring nearly \$42.00, and says, "Think of that, O GLEANINGS! as an average for one colony!" That was, almost surely, extracted honey. "In this locality" a single colony in one season yielded 300 lbs. of *comb* honey, which, at 15 cts. a lb., makes \$45.00. Think of that, O I. B. J.! as an average for one colony!

DR. C. D. CHENEY has sent me a modification of the Root hive-tool that has a good look. The right-hand corner of the chisel end is rounding, and the other corner is left square, as usual. That gives all the advantage of the full rounded end to be forced under a super, and also of the sharp angle. At a distance of 1½ inches from the chisel end there is a slight curve, raising the hand a little above the point of entrance. This gives one more power, I should think, than to push in a perfectly horizontal direction.

G. M. DOOLITTLE, you seem to favor cutting out the best of the old combs to be used over again in brood-combs, p. 192. What an old foggy you are! Don't you know that bees reared in that old comb will be dwarfed in size, and that part of the combs in a hive should be renewed each year to avoid that dwarfing? The trouble is that the bees are just as old foggy as you are. Give them an equal choice between new and old comb, and they'll take the old every time. Come to think of it, in 50 years I've never renewed a comb on account of age, and I have some fair-sized bees yet.

PARCELS POST is so nearly in sight that it is about time to be talking about the best packages for carrying comb, bulk-comb, and extracted honey by mail. They should be of different sizes up to 11 pounds each, and of such material and construction as not to leak and get honey ruled out of the mails, and at the same time as inexpensive as possible. [Do not be too sure. It is one of the tricks of the politicians to make us think that they are going to pass the legislation we want; and then when we are off our guard they stick in an amendment, or several of them, that utterly nullify the original measure. Better keep on sending postal cards to your senators and representatives, urging them to support parcels post.—ED.]

I HAVE HELD that the most vigorous bees best resist European foul brood, whether Italians or blacks. Now comes *Canadian Bee Journal*, 55, claiming that immunity is a thing separate and apart from vigor. Asiatics have developed ability to resist disease to which stronger whites would succumb—and more of that sort. Sad as it may be to crawlfish at the behest of that Kanuck, I can't muster any satisfactory reply. But I wonder if I can't, at least for a while, hold on to this position: In case of a light attack of European foul brood, the bees sometimes, if not often, clean out the disease of their own accord, and in such case it's the most vigorous colonies that do the best work. Now let's see what that Kanuck will do to me.

THIS MORNING, March 28, at 8 A. M. the sun shone brightly, temperature outdoors 40 degrees; in cellar, a shade above 50. The bees have been in cellar 136 days (4½ months). Doors had been open all night; door opening from furnace-room into beeroom. It was light enough at the pile of hives nearest the door, with entrances directly facing the door, so that at those entrances I could read with little difficulty print like this page (I used a page of Straws to try it). Although it had been open like this all morning, the bees were very quiet, not a bee flying out. The point I want to emphasize is that, with doors wide open, the air was about the same as outdoors, only warmer, and with hive entrances 2x12 the bees didn't need to stir to ventilate hives. Whatever else you do or don't do in cellar-keeping bees, do all you can to give them *pure air in abundance*. [You are just right, doctor. If a cellar is reasonably dry, with plenty of good pure air, bees will stand extremes of temperature very much better than when air is poor and damp. You can not emphasize too strongly the importance of pure air.—ED.]

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

THAT SPRING MEETING.

This will be held in Montrose, May 10 and 11. This promises to be a more largely attended meeting than the regular annual meeting in the winter. Montrose is going to entertain the Association in good shape, and every beekeeper who can possibly attend should do so. Homeseekers' rates will be on sale from Denver, Colorado Springs, and Pueblo so that these rates may be available to a good many beemen on the eastern slope. The homeseekers' rate is one fare for the round trip, good for thirty days.



Zero weather in March, with a two-foot snowfall, and the bees buried beneath it (for which I am glad) was pretty severe for Colorado; but we shall be the gainers when the honey harvest comes. Water for irrigation is assured already, as the snowfall passed the normal for this time of year, and more has fallen on the ranges than for several years. There will be more arguments for double-walled hives in every beeyard, when this cold wave has passed, in the shape of dead bees and colonies. When folks get into a habit it takes a good deal to make them see their mistake. Perhaps we shall have to have several demonstrations of the value of double-walled hives or winter cases before we change our ways.



LIME FOR THE CLOVERS

At the farmers' congress over a year ago Joe Wing referred to the use of lime for our alfalfa, and said we would soon need to use it, if it was not necessary already. I think he is probably right. Various reasons have been given for the shorter growth and less luxuriant bloom; but the lack of lime in the soil has not been given serious consideration. The winter pasturage by stock, the freezing of the alfalfa that does not stool below the ground, and the constant hauling of the crops to market and putting nothing back on the land in the way of fertilizer have all been advanced. They are all factors, no doubt; but perhaps it would be well to look into the lime problem a little. The more thrifty the growth, the more nectar for the bees. It will not do any harm for beekeepers to help the lime investigations along in every way possible.



FREE SUGAR.

It looks like it; and, regardless of our personal interests, it will be a good thing for the country as a whole. The beet-sugar interests are opposed to it, and the farmers who raise sugar beets will be drawn into the fray. We in America will have to come sooner or later to a realization of the importance of supporting public benefits in the face of private loss. I would vote for free

sugar, even though it might have a tendency to lower the price of honey. The beet-sugar industry is a very important one in Colorado, and I notice that our three Congressmen from Colorado are against free sugar. But there is no reason for alarm to the industry as I see it, and any way there is not a farmer who can not make as much from other crops as he can from beets. In fact, many farmers have given up the raising of beets; and the greatest difficulty of the sugar company is to get contracts for the raising of beets, signed by the farmers.

Colorado has seventeen beet-sugar factories, I think, and there seems to be an effort to make public sentiment against free sugar now by putting men to work at remodeling the factories. One hundred and fifty carpenters alone are reported to be at work on the Longmont sugar-factory. Whether this work is being done now to make sentiment against free sugar, it is a fact that all the news of the beet industry is finding its way very quickly into the newspapers. Much is made of the immense acreage signed up in the different districts. I believe the majority of the citizens are in favor of free sugar, and I am satisfied they are throughout the whole country. Let us have it.



A BEEKEEPERS' BUNGALOW.

I have been figuring a little recently on the trend beekeeping is taking, and I am convinced that, for the West, an automobile is the cheapest method for the man with 400 colonies or over. Now, what is the use of building an expensive shop to store all one's supplies in when one building can house the family and supplies, and auto too? A full basement under a five or six room bungalow, with the first floor three feet above the ground to give light in the basement, will house the auto and supplies for 500 colonies, and leave room for shopwork and furnace-room and vegetable-cellar. An inclined drive into the basement at the rear of the house would be provided; and with the first floor three feet above the ground the basement floor would not need to be more than four or five feet below the surface of the ground. The furnace would heat the basement to a comfortable heat for working in winter, and the auto could be loaded and unloaded right in this basement shop. This would obviate the building of a shop, barn, or garage for supplies, horses, or auto outside. The beekeeper would always be close to his shopwork, and the water supply and heat for the house would be available for the basement shop. Most of the beekeepers in the West live in town, and run out apiaries; and a home built on this plan would meet the requirements of many a beekeeper. Some of these days I will build a bungalow on this plan myself.

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

See here, Arthur C. Miller, you ought to be ashamed of yourself for trying to poke fun at two innocents as you have done, Mar. 1, page 131. It so happened that the two boys referred to never knew that they were preparing an article at the same time, so you see there was no deep-laid scheme between us, and we were running a big chance of tripping one another. However, when all is said and done, you may rest assured that none of us are going to try to prevent your using a hive that needs a paper-hanger to get it in shape for winter. On the other hand, if spared till another fall this scribbler will pack the bees just a little bit *better* than ever before, for fear next winter *may* be colder than the last one.



QUEEN REARING WITHOUT GRAFTING.

The plan of getting queen cells by laying a brood comb flat on top of the combs of a colony, as described in March 15th GLEANINGS, also in March *Canadian Bee Journal*, seems to be creating a lot of interest. It certainly looks well; and in June I hope to try it on a small scale. When friend Greiner wrote it up last year it appeared to me to be something really original, although in some ways it had a resemblance to the Alley plan. It seems funny that more notice was not taken of the plan which Mr. Greiner so fully described at the time; and this only shows how prone we are to overlook a good thing until a number call our attention to it. While the plan will especially appeal to the busy home producer, I doubt if it will ever be popular with the commercial queen-rearer, as he would not care to mutilate so many combs as would be necessary when thousands of queens were being raised.



INBREEDING TO A HARMFUL EXTENT NOT POSSIBLE.

Much has been said during the past few years about "in-breeding" of bees. Of late I have been thinking the term a misnomer in so far as it relates to bees. Recently it has been my privilege to attend the short courses at Guelph Agricultural College; and after seeing how closely line bred are all our various kinds of stocks, including poultry, I have come to the conclusion that it is virtually impossible to inbreed bees to a harmful extent. Why? Simply because of parthenogenesis defeating our plans, and because of the fact, too, that, so far, we have no successful plan of controlling the male parentage. Judging from the amount of trouble that breeders of different kinds of stock have in getting true distinct types, even when they can control both sides of the parentage, I confess to being a bit skeptical as to the probability of beekeepers doing much along that line until some method is found of controlling the mating of our queens.

Regarding these short courses, it is indeed a healthy sign to see hundreds availing themselves of the benefits to be derived from these institutions. While I had little time to attend the beekeeping course, yet my few visits convinced me that there were many earnest students in attendance. The program was intensely practical, and the facilities for demonstrating very fair, considering that beekeeping has just recently been recognized. If I am correct, I believe that about 50 attended the course. I shall have more to say about this in a future issue.



WHAT ARE HYBRIDS?

Dr. Miller is quite a stickler as to the use of correct language; and yet, in common with the rest of us, he unblushingly makes use of the word "hybrid" when speaking of cross-bred bees, page 152, March 15th. Now, we all know that the term "hybrid" refers to the offspring of the crossing of two different species; as, for example, the mule in the animal kingdom, or emmer, or speltz, in the varieties of grain. As nearly as I can find out, beekeepers are the chief sinners who use this misnomer when speaking of cross-bred stock. Just why this is the case is hard to explain, unless the excuse of brevity will have to explain the matter. No, I have no fault to find, but it only shows how we can change the real meaning of a word by constantly misusing it; and after all no harm is done so long as no confusion results from the change. Possibly "shook swarming" will soon be recognized as being perfectly in order so far as the doctor is concerned.



DEEPER FRAMES THAN LANGSTROTH PREFERRED.

Regarding the discussion on depth of frames for wintering, provoked by that article of Mr. Simmins in a recent issue of the *C. B. J.*, it appears that both sides of the controversy are going to extremes, as is very apt to be the case in all discussions along this line. With the hive advocated by Mr. Simmins, certainly his claims appear ridiculous when it is considered how little difference in size there is between the hive he is censuring and the one he is upholding. On the other hand, I am firmly convinced that a frame one-third or more deeper than the L. size is away ahead of the latter for wintering outdoors in our climate. I do not say that bees can not be wintered on these shallower frames, for such a claim would be absurd; but it takes far more attention to be sure of results with this frame than it does with the deeper frame. This assertion will, I believe, be accepted by nearly all who have tried the different depths side by side. Personally I much prefer the deeper frame, but at the same time I generally advise beginners to start out with the standard frame.

Conversations with Doolittle

At Borodino, New York

PROFITABLE AND UNPROFITABLE WORK.

"Mr. Doolittle, I have been thinking that it is very easy to spend more time and work with bees than strict economy requires. What do you think about it?"

"Undoubtedly there is quite a little work done in many apiaries that is not strictly necessary, along the line of fussing with bees. At its present high price, labor is the most expensive factor in honey production, and all possible short cuts should be taken advantage of. Sometimes it is well to ask ourselves the question, 'Will this work pay?' or, 'Could not the time be used to better advantage in doing something else?'"

"What are the really necessary things to do at first?"

"The first work in the spring, where bees are wintered in the cellar, is to remove them to their summer stands; and in doing this, if the bottom-boards are turned, or a clean one given to No. 1, and No. 1's old board cleaned for No. 2, then cleaning the one taken from this, and so on, a saving will be made above a general cleaning later on, and the bees are put in better condition at the outset. Then, as soon as a day will permit, go over all colonies, seeing that they have sufficient stores to last till the nectar-producing flowers bloom, and also that each colony has a good queen."

"Is that all you do before the flowers bloom?"

"That is all that is really necessary, except where any are found short of stores, queenless, or with very poor queens. The wants of these must be supplied immediately, or as soon thereafter as is possible. After this, unless you have your hives and surplus arrangements all in readiness before, this work should be done while waiting for the honey-flow."

"But the beekeepers about me wait till their colonies become strong, or till they know just how many supers are necessary, on the ground that it is poor economy to purchase a lot of stuff and run the risk of losing many colonies or having them weakened by spring dwindling."

"That is the poorest kind of economy; for hundreds if not thousands are caught by a good honey-flow without being prepared, and the loss of this good flow, or any part of it, would more than overbalance the interest on such an investment. There is nothing like being in readiness at all times and in all seasons in the bee business. As soon as the first nectar is coming in from the fields all colonies must be looked after again, the wings of all queens clipped, the stores and brood looked after, and a memorandum of each colony made, so that the apiarist can govern his work on each during the summer accordingly. This memorandum of each will tell where the first supers are to go on, where the first work is needed in regard to the prevention of swarming, or where the

first swarms may be expected to issue, if natural swarming is allowed. It will also tell where poor queens are to be replaced with good ones, which colonies are to be replaced with good ones, which colonies are to be bred from, both as to queens and drones, and where drones are to be restricted by doing away with all drone comb as far as possible, etc."

"But do you keep this memorandum for the whole season?"

"No; but we hardly make out a full one thereafter. As hinted at, the supers are put on at just the right time, considering the strength of the colonies and the blossoming of the flowers which give the surplus honey. More supers are added at just the right time; finished supers are removed promptly, the honey graded and packed according to the demands of our market, so as to have it ready for the early price, thus taking advantage of these things in a way to bring us the most for our product. As fall draws on, the bees must be put in good condition for winter, not waiting till the last moment as so many do."

"Your question, then, could be answered very briefly by saying, 'Do things at just the right time and in the right place, leaving no stone unturned whose turning will result in profit.' The old way was, merely to hive swarms, put on and take off supers—nothing more—as the bees work for nothing and board themselves. The other extreme is, to look each colony over every week, equalize stores, raise queens, take each section off as soon as sealed, feed for winter, etc. The practical course does not reach half way between these two extremes. The farmer loses much honey by not doing a few things at the right season. The practical, economical, professional apiarist does just those things, but no more, and at just the time for the best results."

Extracting Uncapped Honey Not Practiced Generally in New Zealand

Having noticed some time ago a letter from Mr. Isaac Hopkins, advocating the extracting of honey before it has ripened in the hive, I wish to state that Mr. Hopkins stands alone in that matter so far as the beekeepers of New Zealand are concerned. We had an exhibition here some years ago. Mr. Hopkins, then acting for the government, was running an apiary in connection with the exhibition. At that time he was practicing his plan of premature extracting; but the sample of the honey in Agricultural Hall soured and started to ferment; yet in spite of such adverse experience he still advocates the plan. He quotes Mr. Alexander as supporting him; but it must be remembered that the conditions upon which Mr. Alexander based his theory were altogether different from what we have here, as buckwheat is not grown here to any extent, if at all. I am glad to see that all the criticism of Mr. Hopkins' ideas have been adverse; for although, under some circumstances, it may work without disaster, yet in most cases it can never be a success.

A. IRELAND,
President Canterbury Beekeepers' Association.
Christchurch, N. Z., Jan. 20.

General Correspondence

MAKING INCREASE

The Importance of Becoming Acquainted with the Advice in the Best Books on the Subject

BY DR. C. C. MILLER

[The following is a reply to a question asked by J. G. Nance, Keyil, Ky., on the subject of making increase. Mr. Nance sent the same inquiry to Mr. Doolittle, whose reply appeared in the last issue, p. 227.—ED.]

Your question is a very broad one. Unfortunately—fortunately in some respects—there are more ways than one of making increase. Indeed, taking all the variations that may be made, there are more ways than a dozen. What is the best way for one may not be the best way for another. What is best in one locality may not be best for the same man in another locality. What is best for one season may not always be best for another season. Indeed, what is best for a certain man in a certain locality and in a certain season may not be at all best for the same man in the same locality and in the same kind of season, if in the first case he is entirely without experience; and in the second case he has made great advancement. So I think you will see that, to be able to advise you satisfactorily, I ought to be well informed as to you and your surroundings.

I feel safe, however, in giving one general bit of advice to any one who wants to know the best way to make increase. It is, to inform oneself thoroughly on general principles. Make yourself thoroughly familiar with the contents of one or more of the excellent books of instruction about bees, such as Root's A B C and X Y Z. Even things that on the surface seem to have no connection with the subject of increase may have a vital bearing upon it. Then give special attention to the matter of increase itself. Read up all you can in all the books and papers at your command that tells any thing about increase. I do not hesitate to recommend to you the book "Fifty Years among the Bees" as being as full upon the subject of increase as any book you can find, beginning at page 265. Having thus informed yourself you will likely be able to tell better than any one else what will best suit your case.

After generalizing in this way I will not leave the subject without some attempt at particularizing; and if I can not tell you what is the very best way for you I can at least say something about a way to do.

It is just possible that natural swarming may best suit your purpose. But if the bees are left entirely to their own devices, natural swarming is likely to be more or less unsatisfactory. They may swarm too little. They may swarm too much. The poorest colonies may swarm two or three times each, and the best colonies may re-

main without swarming. Well, then, don't leave them entirely to their own devices, but take a hand in the matter yourself. If there is any choice as to stock, select about five colonies that you think are the best of the nineteen. Suppose A is one of those that are thus selected, and that B, C, and D are three of those not selected. Take from one or all of B, C, and D some of their fullest and ripest frames of brood, and exchange with A for its poorest, thus strengthening and encouraging it to swarm. When A swarms, hive the swarm and set it on the stand of A, putting A in place of B, and setting B in a new place. The field bees of B, when they return from foraging, instead of returning to B will go straight to their old location and join A. That, of course, will strengthen A. In about eight days the first young queen in A will emerge from its cell, and a swarm will issue. Hive this swarm and set it in place of A, and set A in place of C, setting C in a new place. Within two or three days A will swarm again. Set the swarm in place of A, set A in place of D, and set D in a new place.

You have now accomplished two things: You have made sure of a swarm in place of each of the colonies B, C, and D, which, without your interference, might not have swarmed at all and you have made sure that each shall have a queen of good stock.

Of course while all this has been going on you have performed in the same way with the other four of your selected colonies; and when all the colonies have been replaced by a swarm you will have 38 colonies in all. That is not as many as you want. Well, when you set A in place of D, probably A will swarm again in a day or two. When it does, you can set the swarm in place of A, and set A in a new place. If you do the same way with all of your selected colonies, that will add five more to your number, making 43 in all.

If you want to go beyond this, instead of putting A in a new place when it swarmed the last time on the stand vacated by B, set A in the place of C, putting C in a new place. Then when A swarms again you can set A in a new place unless you want to go still further.

The show may not come off exactly according to program, for there is a possibility that, toward the last, the swarm will not issue. There is very little doubt, however, about reaching the first 38. On the other hand, there is a possibility that, when A or one of its compeers is set on a new stand for the last, with the understanding that it will swarm no more, it may take it into its head to send out another swarm, although it will be a weakling. If this weakling is not desired, it may be put in a dark cellar for 24 hours, and then returned to the hive it came from.

Marengo, Ill.

IS SWARMING A CAUSE OR RESULT?

BY J. E. HAND

Swarming is the fulfillment of a natural impulse of bees, and is governed by certain fixed laws. Since swarming and queen-rearing are inseparably connected, the popular theory is that swarming-cells are constructed in obedience to a desire of the bees to swarm. Right here the question arises whether bees prepare for swarming by the construction of swarming-cells or whether all queen cells are constructed in obedience to certain fixed laws over which they have no control. In the latter event, swarming would be the effect instead of the cause of queen-cell construction. While many will not accept this theory, I think all will agree that the presence of a plurality of queen cells will cause after swarms to issue so long as a queen cell and a handful of bees remain, provided external conditions are favorable.

The popular theory prevails that there are two conditions under which "queen-right" bees rear queens, viz., swarming and supersedure. Who can distinguish between swarming and supersedure cells during a honey flow? To my mind, a more reasonable theory is that all queen cells are constructed in obedience to an inborn instinct to supersede either a failing or a departed queen. For instance, a combination of forces compels the construction of supersedure cells, and the presence of queen cells in a brood-chamber already having a vigorous queen places the colony in an abnormal condition; and the law of self-preservation, impelled by the power of instinct, compels the bees to seek the lines of least resistance by migrating to a new home, and hence the issuing of the swarm.

Doubtless some will say that bees will not construct supersedure cells while a vigorous queen is present. It is generally conceded, however, that, if a vigorous queen is caged within the hive in such a manner as to restrict her in the performance of her natural function (laying eggs), supersedure cells will usually be constructed. Hence it is evident that any thing that will have a tendency to restrict the queen in the performance of her natural function will operate as though she were actually failing. While restricted function is not the direct cause of swarming, the psychological condition thus produced will develop the queen-rearing impulse to the highest pitch, and supersedure cells will be constructed regardless of external conditions. Thus while the swarming instinct is always present, there will be no swarming unless the forces are present that nature employs to develop the queen-rearing impulse. While a slight restriction of the function of the queen may not be noticeable to the apiarist, it is, nevertheless, manifest to the unerring instinct of the bees to supersede a failing queen.

If the event transpires outside of the period of nectar secretion, and especially if

the diminution of egg production is due to a defect in the queen, supersedure will be the result. On the other hand, if the fertility of the queen is not exhausted, and if the decrease in egg-laying is due to restricted function of the queen, caused by an overcrowded condition of the brood-chamber, and if external conditions are favorable, swarming will be the result.

If the above deductions are correct, it is evident that any thing that will break up the combination of forces that nature employs to develop the queen-rearing impulse will prevent swarming; hence the importance of always having a young and vigorous queen in every hive. While a vigorous queen in a large brood-chamber will have a tendency to prevent the development of the queen-rearing impulse, perhaps some method of separating the bees and queen from their brood at the beginning of the honey flow is the surest and most economical method of swarm control. Such a method would provide ample room for the queen to exercise her natural function, and therefore the forces that develop the queen-rearing impulse are not present, and swarming is controlled. The segregation of many colonies near together is contrary to nature; therefore the fact that, under these conditions, bees will often swarm in open violation of all rules and regulations should not be taken as evidence of an error in the theory, but rather as an instance of abnormality caused by the excitement consequent upon the issuing of many swarms near each other.

Birmingham, O.

RHEUMATISM AND BEE STINGS

The Poison of the Stings Valuable for Only Certain Types of the Disease

BY J. B. TALMAGE, M. D.

I notice that from time to time various cures for rheumatism are presented to the public with somebody's recommendation that the one he describes is a sure cure. In GLEANINGS the favorite remedy discussed pro and con is bee stings. It is not my purpose to make GLEANINGS a medical journal, but it seems a matter of interest to consider briefly why so many cures are proposed, and said to be good or worthless according to each one's experience.

It should be known that the term "rheumatism" as commonly used covers a class of diseases such as inflammatory rheumatism (true rheumatism), muscular rheumatism (myositis or myalgia), articular rheumatism, rheumatoid arthritis, sciatica, etc. The character of these diseased conditions differs widely, and necessarily the same must be true of their treatment. Further, two cases that would be diagnosed the same might require different remedies for their cure because of the difference in the chemical and physiological condition of each individual. Physicians well understand that

the name of a disease can not be successfully treated, but that the patient must be treated in the diseased state that he presents. Hence his case must be studied and treated individually.

To illustrate this point and show the value of the poison from the honeybee (formic acid) in treating suitable cases of rheumatism I will relate two cases from my practice. A few years ago a man came to me, stating that he had rheumatism, and that he understood that I could cure such cases by giving the sting of the bee. He was assured that rheumatism could be treated in that way if the symptoms indicated that remedy. After getting his symptoms, and finding that drug well suited to his case, he was given the remedy, prepared in very small doses. After a time his neighbors told me that he was very much improved, and later he came in and said that the rheumatic pain had all left him.

A little later another man who was a great sufferer from a rheumatic condition, having talked with the one who was cured, came to me and very much desired to be cured in the same way. Upon taking his case carefully, I assured him that his case was different from the first, and that it was doubtful if he would receive benefit from the drug. As he was anxious to give the stings a trial he was given the same dosage the first man received. After taking the medicine without results he came the second time, and the prescription was repeated and faithfully taken, with no results whatever.

From the above it should be clear to every one why those who have been stung by bees have been cured of their rheumatism, and equally plain that the other rheumatics who submitted to this painful ordeal declare that stings will not cure rheumatism. From this we may see why one may recommend grape fruit, another hard cider, and a third something else. There is no panacea for rheumatism or any other disease.

If those who wish to try stings would consult their nearest homeopathic physician they could learn whether that was their remedy before undergoing this heroic and painful treatment at random, not knowing whether it would hit or miss. Homeopathy has used this remedy for very many years. Its symptomatology is based upon definite proofs so that the treatment need not be applied in an uncertain way.

Ladoga, Ind.

THE GREEN FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL

[This is the second article in the series by Mr. Lovell, on the colors of North American flowers, the first appearing on page 53, Jan. 15.—ED.]

The primitive color of flowers was undoubtedly green. Many years ago the German poet Goethe proposed the theory that the whole flower was only a metamorphosed bud, or part of a branch of leaves, the mod-

ified leaves serving as pistils, stamens, petals, and sepals. Despite many attacks, this view is still accepted as true, at least historically. In most flowers the calyx has remained green; and in some species, as the hepatica, its derivation from leaves is evident from inspection. It is not uncommon for both sepals and petals to revert to green leaves, and I have before me a flower of the fuchsia with three white petals, while the fourth is a green leaf. This may even happen to the entire flower. In the Black Hills a fossil "flower" of a cycad-like plant has been found by Professor Wieland, of Yale, which is protected by an indefinite number of bract-like leaves instead of by a calyx or corolla.

The green hue of both green leaves and flowers is produced by the pigment called chlorophyll, or leaf-green. If you put a few grass leaves in alcohol the chlorophyll will dissolve out, forming a yellowish-green solution, and the leaves will be left perfectly white. Place this solution in bright sunlight, and its color will soon be destroyed. In living leaves and green flowers under the action of bright light the green pigment is constantly being destroyed and renewed, so that no two leaves are identical in hue, and no leaf long remains of the same shade. We are surprised to note that Freidank, a German poet, who lived four hundred years ago, observed this fact.

Many hundred flowers
Alike, none ever grew;
Mark it well, no leaf of green
Is just another's hue.

Leaf-green, or chlorophyll, is not only the most common but it is also the most useful of all pigments, for all life depends upon its existence. Leaves containing this pigment are able to make use of the energy of the sunbeam, and to manufacture out of water, and the carbonic dioxide in the air, starch, one of the principal plant foods. That is, out of the inorganic elements they build up an organic substance. As all animals are dependent either directly or indirectly upon vegetation for support, the destruction of chlorophyll would mean the disappearance of life from the earth. All living beings are dependent upon the radiant energy of the sun and upon chlorophyll. "In this sense," says Tyndall, "we are all 'souls of fire and children of the sun.'"

Of the 1244 green or greenish flowers found in the northeastern States, by far the larger part, or 1021, are pollinated by the wind. They contain no nectar, and are visited by bees only for pollen, and not as extensively as would be expected for even this purpose. They are all of small size, and by some botanists are believed to be derived from ancestors which were larger and were pollinated by the insects. Failing to attract a sufficient number of visitors for this purpose they have retrograded, and become adapted to pollination by wind. It is desirable that this group be recognized by beekeepers, since otherwise they might expect their bees to bring in nectar when it did not exist.

Only 223 green flowers are pollinated by

insects or are self-pollinated. Most of them are small or even minute; many have no petals, as 15 species of the buckwheat family, 8 species of the pink family, and also several in the rose family. While they very generally have the power of self-fertilization, as in the small flowers of the pinweed (*Lechea*), in some instances the sexes are borne on different plants.

They are chiefly attracted to flies and the smaller bees; but the yellowish-green pendulous flowers of the garden asparagus are very frequently visited by bees for nectar. The large greenish panicles of the sumac are also very attractive to bees. Mr. Allen Latham has described in GLEANINGS how in Connecticut, if there is fair hot weather in July, a colony of bees will store from 20 to 100 pounds of honey from *Rhus glabra*. The honey is described as golden in color, and at first intensely bitter in taste; but with age it acquires a most agreeable flavor.

Our common species of sumac in Maine is not *Rhus glabra* but *Rhus typhina*, which is often common in dry uplands. Besides bees, which are frequent visitors, I have taken on the flowers a large company of wild bees, flies, beetles, and even butterflies. The staminate flowers are white, and much oftener visited by insects than the green pistillate panicles. Some of the smaller bees which visit the former, apparently never visit the latter.

In the grape or vine family the small valvate petals never expand, but fall away by separating at the base and coiling spirally upward. The fragrance, which resembles that of mignonette, can be perceived at a long distance. Kerner relates that, in a journey up the Danube, he found the whole valley of the Wachan so filled with the scent of the vine flowers that it seemed impossible that they could be far off; yet the nearest vines were three hundred yards from the boat. The bee has been collected on the flowers, and cross-pollination is also occasionally effected by the wind.

Various exotic species of the nightshade family and some Brazilian orchids possess large green flowers. They are strongly scented in the evening, and are attractive to moths. As would be expected from their size, structure, and past history, the majority of green flowers are of little value to beekeepers. But in his list of honey plants of Texas, Scholl mentions several other shrubs or trees, besides the sumac, with small greenish or dull-colored flowers which produce nectar abundantly.

Waldoboro, Maine.

DOES IT PAY A BEEKEEPER TO MAKE HIS OWN HIVES?

BY G. C. GREINER

Since the appearance of my pictures in the July 15th issue for 1911 I have had numerous inquiries, both verbal and by letter, in regard to the practicability of beekeepers making their own hives; and the main

point always seemed to be the financial part of it. The questions asked run something like this:

"Do you think it would pay me to make my own hives?"

Without entering into any detailed discussion, my answer would be, "Yes, under certain conditions; but as a rule, emphatically no."

Years ago, when hive-making occupied more of my time than it has for the last ten or fifteen years, I expressed my opinion on this subject in one or the other of our bee magazines. To take up that subject again now, seems like dishing up an old story, and undoubtedly it is to some older beekeepers; but during the last decade or two a new advice-seeking generation has sprung up, and for their benefit I give my views again.

The prospective hive-maker may be anxious to know what those "certain conditions" are. I will enumerate them in the order of their importance:

1. The hive-maker must have a fair knowledge of bee nature, especially in regard to the way bees use the inside of a hive for comb-building, brood-rearing, etc.

2. He must have access to true-running, properly arranged power rip and crosscut saws, and be handy with a planer.

3. He must have a certain amount (the more the better) of natural mechanical inclination, and—

4. His necessary supply of lumber must be obtainable at a reasonable rate.

To the uninitiated, the first one of the named conditions may not seem of sufficient importance to take the first place. He may think that almost anybody can follow the instructions a properly constructed model will give. That may be true in some cases. We did the same thing when we launched out on our present occupation; but we happened to have a model to work from that allowed changes with no great inconvenience and expense, when progress and advancing ideas made them desirable. With others it may be different. It may not be long before the individual's experience may, for various reasons, make a change desirable. He may want to change from comb to extracted honey, or from one size of section to another, or change from eight to ten or ten to eight frame hives, and so on. All this would necessitate a change of appliances, which, after once started in with a quantity of a certain pattern, would be very inconvenient and expensive, or else it would cause a mixed lot of different sizes and dimensions among the outfit, which would be equally objectionable, for the most rigid uniformity in every thing is strictly necessary in any apary. It is the keynote to convenient and rapid work. A little forethought on the part of the person who contemplates taking up beekeeping for a living, a little more study of our textbooks and literature, comparing his readings with his locality, his demand, and the outfit he intends to use,

etc., before he decides on any certain make of fixture, may prevent disappointment later on, and start him on the right track.

The second clause of "certain conditions" is of next importance. The whole outfit displayed in the above-mentioned pictures is all *home* made but not *hand* made. Every piece used in the makeup is fitted by power saws and planer. I am frequently asked, "Did you make your hives by hand?" I simply smile, and say, "Yes, I nailed them by hand, and I painted them by hand, and handled the lumber by hand when fitting the material; but I had power saws and planer to help me." Although I have done mechanical work all my lifetime, I consider fitting hive material by hand a task all out of the question. There is not a mechanic in the country who, with all his skill, can fit a single hive body, end piece, or make a main-frame topbar by hand as nearly perfect as true-running machinery will make, to say nothing of making it pay in quantities.

Next in order is the mechanical skill of the operator. Even when we have the necessary machinery at our command, it requires no little ingenuity to keep it in proper running order. It seems like an easy matter to set the gauge of a saw twice alike. It is for nearly all housework, even for door and sash manufacturing, that a little variation is many times admissible; but if positive uniformity is our aim, hive-making requires more exact measuring than almost any other kind of woodwork. As an illustration of what uniformity in an apiary means, I refer the reader again to the above-mentioned photographs. From a superficial view, the whole outfit seems to be uniformly made; and, in reality, we find that this is the case in every particular. Although the material was manufactured at different times, at intervals of from one to ten or fifteen years between different portions of it, every separate part, such as hive bodies, bottom-boards, covers, stands, etc., is interchangeable with every other one of the same kind; and, more than that, every separate piece, large or small, used in the construction of those different parts, is a perfect counterpart of every other one of its kind. When we started hive-making at the beginning of our beekeeping career, in 1876, and had decided on the kind, size, dimensions, etc., of our output, we made a list containing every separate piece used, and described it by its exact length, breadth, and thickness for our guide to work from. To this list we adhered, year after year, as closely as close measuring made it possible, and to this day I use the eccentric-lever forms for nailing main and broad frames (section holders) I made at that time, 36 years ago. The result of persistently applying our little available mechanical talent to our work is the complete uniformity in our apiary. The benefit derived therefrom can not be overestimated.

The lumber question, the last of the four requirements above mentioned, has also

considerable bearing on making home manufacture a paying venture. Thirty-six years ago, when the hills of our home town, Naples, were yet covered with uncultured pine forest, average lots of lumber could be bought from almost any neighbor at from \$12.00 to \$15.00 per 1000. These lots would contain any thing from six to sixteen or eighteen inches wide, and run from more or less knotty to clear or practically clear lumber. In sorting out the different grades to best advantage we could generally work up any lumber-pile into quite respectable-looking hives.

But times have changed. Our New York hills are pretty well stripped of pine or any other timber, and we are compelled to call on our local lumber-dealers, who import their stock from the West, for our supplies. Under these circumstances the prices of all kinds of lumber have risen to such dazzling heights that the pocketbooks of us common beekeepers can hardly reach them. To-day we would have to pay for fairly clear lumber (not strictly clear), such as would be desirable for hive bodies and cover tops, anywhere from \$60.00 to \$80.00. This item alone puts an unpleasant damper on home hive manufacture.

After making a brief statement of the foregoing, the inquirer generally asks: "How, then, can I get my supplies?" Very simple. If a person feels anxious to occupy his leisure time, and wishes to make use of the mechanical inclination he may be favored with, the shortest and most convenient way to procure his outfit is to order the fitted material from any of our established bee-supply manufacturers. They keep standard goods constantly on hand, and can fill an order on short notice. In case their list of supplies does not include the desired kind or any particular make we wish, by giving an exact description they will make to order any article desired; and, what is the best part of it, their work will be far superior to any home-shop productions.

In regard to expenses I know from experience that the price of fitted material is little, if any, above the cost of the raw lumber it would require to make the goods. For various reasons a part of my outfit was procured in this way some years ago. To prove that I do not overrate the exact workmanship of our bee-supply establishments, I will add, incidentally, that these ordered goods were made so near to given measurement that no variation could be detected from those of my own make.

La Salle, N. Y.

Upper Ventilation Makes the Honey Too Thick

As I work away from home I ventilated my hives by raising them $\frac{3}{4}$ of an inch from the bottom-board. I also put two one-inch auger-holes in the top of the brood-chamber, and kept on full-depth extracting supers. I fixed ten colonies in this way without increase. One colony, whose hive was not ventilated, cast two swarms. I do not like ventilating here, as the moisture dries out of the honey until it is too thick to extract; but I believe that the plan is all right except in arid regions.

Acequia, Idaho.

C. A. VAN RYPER.



Allowing the bees of a swarm to run directly from a small cherry tree into a hive.

A SWARM THAT TOOK ENTIRE POSSESSION OF A CHERRY TREE

BY R. C. SCOTT

The swarm shown in the engraving issued from a hive about the middle of August, and settled direct on this cherry tree. I placed a new nine-frame Massie hive by the tree, and the swarm entered it, although the hive had only the bare frames. After that time the bees filled the brood chamber clear full, and stored 15 lbs. in the super.

Segundo, Col.

CARNIOLANS NOT SWARMERS

BY LOUIS SCHOLL

After having quite a number of colonies of Carniolan bees in our apiaries for several years, both pure and crossed with blacks or Italians, we may say that we have never had any trouble with these bees swarming more than any other that we have observed. Our experience has included every variety of bees that have been popular at one time or another, such as blacks, Italians (goldens and three-banded), Cyprians, Holy Lands, Carniolans, Caucasians, and Banats, and various crosses of several of these races. We have, however, attributed our success in controlling swarming of even the much-condemned Carniolans to the large hives

we use. They are ten-frame hives which we adopted years ago after trying them side by side with the eight-frame hives, in every possible way, trying to make the best use out of them, since we had them on our hands. In addition to the regular ten-frame hives we have the ten-frame divisible-brood-chamber hives that are still better for this purpose of swarm control, since many manipulations can be made with this kind of hive that are not possible with the regular hives.

But recently we received a letter from a Carniolan queen-breeder, Wm. Kernan, in which he says in part, "You will find that Carniolans will do best in ten-frame hives. They seem to do better than in eight-frame tiered up. If you have any ten-frame hives, try them; and if you give them an abundance of *drawn comb* they will never swarm. I think Moses Quinby told us this." This shows how nearly right we were in our supposition and the use of the ten-frame hives.

This is a matter of importance to the honey-producer who wishes to make large crops of honey instead of swarms, and especially if the bees are in out-apiaries. While it may be argued that other races would be better than Carniolans, we have two apiaries of them, and rather like their good qualities. They are large bees to begin with, although those who do not like a black bee may object to the color of the Carniolans. However, the person who studies their color and particular markings more closely will find

that their beautiful ashy-gray color is no uglier than the color of other bees. Then they are docile in their temperament, and quietly remain on their combs when handled, so that it is a pleasure to work with them. Especially during a honey-flow, when these great big fellows filled with honey drop from the combs with a heavy thud, the apiarist who is at all a student of nature can not keep from admiring them.

Another good trait is that they build up early in the spring—an important item where the spring flows come early.

As is well known, they cap their combs rather whiter than some of the other races, and this makes them excellent for producing fancy comb honey. Their excessive swarming has condemned them, however, in spite of these good qualities; but it seems that, with the proper hive and methods, this objection may be removed, at least to some extent. This would make the Carniolans seemingly a more valuable race than they have heretofore been reputed to be.

New Braunfels, Texas.



HOW AN EXPERT HANDLES A SWARM

Jacob Alpaugh Caught in the Act

BY F. DUNDAS TODD

There is a Scotch saying, "A gaun fit is aye getting", though it be but a broken tae." I am a scion of the tribe of the wandering foot, sometimes getting only a broken toe, but often something I appreciate more highly. Last summer, as bee inspector, I wandered to the tune of several thousand miles by rail, steamer, motor-boat, buggy, and canoe. Luckily for me I pulled through without breaking even a toe; but instead I got quite a lot of photographs, many of which concerned bees. I had a lot of fun taking them, and I want to pass a few of them along to the readers of their journal.

One morning I started out with a definite day's work planned; and as I jogged along, the idea came into my head that I ought to go and see a beekeeper whom I had formerly visited. I really had no particular excuse



FIG. 1.—The swarm in the tree.

for calling again; but just as soon as the notion jumped into my brain I decided I would be foolish for once and follow the whim.

On arriving at the apiary I found myself greatly rewarded; for just about the time I changed my mind Mr. Jacob Alpaugh, of Ontario, had happened on the scene, so here he was running a little bee convention for the benefit of only three people, and I hastened to raise the total gathering to four. We were comparing notes on the subject of swarming, when a swarm very opportunely appeared in the air. It was the first bee convention I had attended where a practical demonstration could be given just as soon as a subject was under discussion, so I quickly suggested that, if Mr. Alpaugh showed us how the beekeepers of Ontario handle a swarm, I would equalize matters by demonstrating how a beekeeper in British Columbia could photograph it. The bargain was considered fair and equitable, so I produced my camera, and he asked for a dishpan, a smoker, and a sheet. Nobody paid any attention to me.

Why did he prefer a dishpan, and what did he want with a smoker? The dishpan, he told us, was to be preferred because it was so smooth that the bees could not cling to it, and so were easily shaken off when they were dumped on the sheet in front of their new home. This was the first time I had ever heard of a dishpan being chosen

above all other utensils; but later in the season I met another beekeeper who had adopted it; but he hastily added a word of caution, to the effect that the pan should be kept away from the direct rays of the sun until it was needed, because, when the sunlight beats directly upon the pan, it gets very warm. One such experience with a hot pan was more than enough for him; for the moment the bees struck the hot metal they rose in a cloud, full of evil temper, attacking every living thing in sight.

In the matter of the smoker, he said he believed that a swarm clustering on a branch had guards set, just as if they were in the hive, so he always gave them a little puff of smoke to upset their equanimity. The sheet was thrown in front of the hive, that the bees might have a surface for walking on that was smoother than grass.

All preparations being made, Mr. Alpaugh got busy and so did I. He kept hustling, and it was up to me to press the bulb, turn on a new exposure in the kodak, and press again. I began with the swarm hanging on the branch; the result is shown in Fig. 1. Then Mr. Alpaugh got started to his work by puffing a little smoke on the bees as exhibited in Fig. 2. In the next photograph, Fig. 3, the button was pressed as he shook the branch, so all we see is a streak of bees. Proceeding to the hive Mr. Alpaugh gave



FIG. 2.—The preliminary smoking.



FIG. 3.—Shaking the branch and dislodging the bees into the dishpan.

the pan a sudden jerk that landed most of the insects on the white sheet (cover picture for this issue).

There was now time for a little conversation between Mr. Alpaugh and the owner of the apiary, as they "hunkered" (no English equivalent for this Scotch word) on opposite sides of the hive. Suddenly the visitor's hand shot out, and "There's the queen!" fell from his lips. Luckily I was prepared, so the incident is on record in Fig. 4.

DO BEES HEAR?

A few feet to the right of the hive there stood some kind of grass which had attained a height of about four feet. All the time the swarm was finding its way home, many bees—say a hundred—could be seen flying out and in among the stems, now near the ground, now higher up, as if they were searching for something. Mr. Alpaugh asked if I could give any explanation of their conduct. I threw up my hands at once, remarking that once in a while I had seen the same thing but never could account for their behavior. Then he remarked that this wandering around what was practically a solid wall was to him the best proof that bees could hear, for these stray bees heard the echo of the hum from the hive, and were searching for their companions. He



FIG. 4.—There's the queen!

had first noticed the condition when hiving swarms close to a solid fence; then later observation showed that, when the hive stood in the open, nothing of the kind happened.

NO PROTECTION AGAINST STINGS.

Mr. Alpaugh is the first beeman I ever met who works without any protection from stings when handling the bees. We spent a couple of days together, opened many hives, often upset the bees considerably, for frequently I had to cut down through the transversely built combs by cutting through the V-shaped edges and force them in line. The bees do not like this treatment any too well, but they always left Mr. Alpaugh alone. He smoked them considerably more than I ordinarily do. In addition he puffed smoke into his beard as a protection to his face. I have been wearing whiskers for 30 years without finding any special use for them, so it rather tickled me to find one man who had found the hair on his face to be of some use, even if it were only as a smoke-holder.

In my wanderings on the northern half of Vancouver Island later in the season, I came across the most vicious bees I ever met. At one seacoast village I had inspected the bees in the forenoon, creating quite a little excitement. A tethered horse smashed a dozen pickets out of a fence; all the dogs in the community, after snapping viciously at every part of their anatomy within reach, had hiked hurriedly for shelter, so that, where about a score had formerly slumbered in the open, not one was now visible. The grocery store was filled with agitated women; the only saloon was briskly dispensing liquid antidote for bee-stings.

Luckily for me the steamer appeared on the scene, so I hastened on board while the getting was good, and so avoided the rush. My next day's wandering brought me to the same pier, so I leaned over the side of the ship and inquired in my softest voice if bees did well on the island. Instantly a huge fist was lifted in my direction, and an angry voice assured me that no living thing had been safe since yesterday at noon. The grocery store was without customers; the owner's sole occupation and recreation was to watch some occasional man putting on his best speed while he frantically fanned the atmosphere with his hat. He invited me to come ashore; assured me that a very large and influential deputation of the inhabitants was just aching to interview me—had cried all night because they believed they would never see me again. Much to his regret I had to decline the earnest invitation—the most urgent and the warmest I had ever had in my life; but I could not get him to believe that were other communities who were sighing for my presence.

Victoria, B. C.

REMOVING A SWARM FROM A PEACH TREE

BY J. B. REYNOLDS

I am sending some pictures of a swarm of bees showing where it clustered on a peach tree. I shook them into a large box and carried them to the apiary and poured them out in front of an empty two-story hive in the corner, which was the location formerly occupied by the parent colony.

Convoy, Ohio.

EXTRA RAPID INCREASE

How One Colony was Increased to Thirty in One Season

BY G. H. ADAMS

On the 20th of May, 1909, a friend of mine, Harry Fort, of Greenwich, N. Y., got a strong colony of Italian bees of me. He wanted more; but I advised him to wait and see how many colonies we could make in one season from this one. To my astonishment we were able to increase that one, with a few extra drones (as the queen did not lay drone eggs that season), to 30 strong colonies, the bees building all their own comb and rearing nearly all their own queens. We did it by dividing. We found it necessary to do some feeding, however, toward the last, as the season was poor.

In order to give a description of the method followed in making the increase it will be necessary to tell what kind of frames and hives I use. My brood frame is $11\frac{1}{2}$ inches deep and $11\frac{1}{2}$ long—nearly the same size as the Gallup. I consider it the best frame for all purposes ever used. I have tried the Langstroth and several other kinds, but do not like them. These frames being deeper, bees winter better on them. The extractors cost less for this kind of frame, and the combs of honey hang in them the same as they do in the hive, making it easier to extract without much breakage of combs. With the Langstroth frame very many break out when the combs are heavy, as they have to stand on end—at



J. B. Reynolds hiving a swarm clustered on a peach tree.



One colony increased to an apiary of thirty during 1910, the bees building all the combs from half-inch starters.

least that has been my experience. Bees build up faster in the spring in these frames, as the hives are more compact.

I use two sizes of hives, both of them of my own design — one an eight-frame hive which I use when running for increase, for shipping, and for wintering. The other, a sixteen-frame, is nearly 25 inches long, outside measure, and is used only for the production of comb or extracted honey. This I call my non-swarmer hive, and I never had a colony swarm when the hive was tiered up three stories high, and only one swarm in 25 years, that I know of, when it was tiered two stories high. I make all my hives with a half-inch space above and below the frames excepting the brood chambers, which have a little more than an inch space below the bottom-bars.

Mr. Fort used nothing but half-inch starters in the brood frames, the bees building all their own combs except the starters. This queen was one of the best layers I ever saw. On May 29 I went to his place and examined the colony, and found seven full combs of brood and one comb full of honey. I took two combs of brood nearest ready to hatch, and the comb of honey, with plenty of bees on all three, and the queen, and put them in an empty hive quite a distance away. I shook the bees from two more combs from the old hive into the new one, knowing that many of the bees in the hive just made would return to the old location. I then placed five new frames with starters in the new hive and three new frames in the old queenless hive.

One week from this time I made two more small colonies from the queenless part, giving each part two nice queen cells. Of course the old hive with the one comb of brood was fully as strong as any, as most of the field workers were there. Note that the queen cells were all started where the field bees were. There were none in the new hive with the queen.

Mr. Fort painted some of his hives green, some white, and some red. Every young queen mated safely this time, and the four colonies were soon strong.

On June 26 the hive where the old queen was located was packed full again. I then divided in the same way I did before, and one week later two more were made.

On July 24 the hive containing the old queen was full once more, and I divided it that day; also quite a number of the old hives; and one week from that time many more were made. We had now come to a point where we could go fast, and the yard was soon full.

On August 28 we divided for the last time.



A large swarm for August.

We split seven of the strongest colonies right in two in the middle, as nearly as we could. Of course the larger part of the brood nearest ready to hatch was placed in the hives on the new stands, with the greater part of the worker bees. In this case we left the queens at home on the old stands. Of course all the old field workers would come back to the old places, and that was just what we wanted, because right here we safely introduced seven Italian queens of the J. P. Moore strain. The last colonies divided soon became strong.

When we had done dividing we found we had 31 colonies; but the queen of one of the hives was not laying as well as we believed she ought to, and so we killed her and attempted to introduce an Italian queen but failed. We then united this queenless colony with one of the weakest in the yard, which reduced the number to 30 colonies. I really believe that, if we had put young queens in the queenless parts as fast as we divided, we could have easily increased to 50 strong colonies from one.

Only 23 colonies can be seen in the picture; but there were thirty in all. Out of 21 colonies that Mr. Fort wintered out of doors by my system, 20 were alive last spring, and out of 9 that he put in the cellar, 7 lived through. The mice killed the two that died in the cellar, and he would have lost all in the cellar if he had not set traps and caught the mice. As it was, he had 27 strong colonies left last spring—a good showing for a beginner. One of these swarmed April 26, 1911. I doubt if this ever happened before in this northern county of New York (Rensselaer). Nineteen colonies were put in non-swarmer hives, such as I mentioned, and the remainder were run for increase. Those run for honey had to build all of the surplus combs and half of the combs in the brood part; but they gathered over a ton of honey.

Troy, N. Y.

INCH BLOCKS UNDER BROOD CHAMBER DID NOT STOP AN AUGUST SWARM

BY G. J. WIMMER

I am sending you a picture of a swarm of bees cast Aug. 22. You will notice it is quite a large bunch. My hand is completely covered with them, and they extend almost to the ground. The hive and supers from which the swarm issued was so crowded that I placed inch blocks under the four corners of the hive, and yet they were clustering all around the outside in large numbers until the swarm finally came out.

Nazareth, Pa.

AN INGENIOUS EXTENSION POLE FOR A SWARM-CATCHER

BY W. A. PRYAL

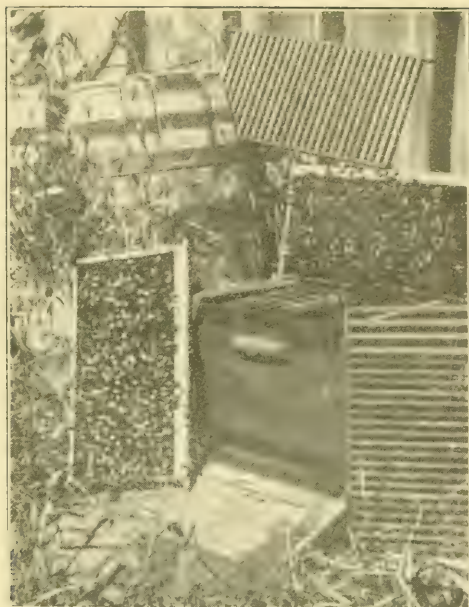
I am sending you herewith a photograph of our ingenious and witty friend S. A. Niver, now of this city, but until last year



S. A. Niver and his telescopic extension-pole swarm-catcher.

of Colerain, Wis. Mr. Niver worked my apiary last season after the beginning of April, and we secured a fair crop of honey, nearly all of which we disposed of at good prices. The apiary was increased and put in good working order for this season.

Mr. Niver reminds me much of our old friend the late J. H. Martin, known to your readers about a decade ago as "Rambler." Their make-up is about the same, save that the latter was not so tall by a good deal; and he is a great joker, as many who have attended Eastern conventions, which he probably graced with his presence, well know. But it is of him as an inventor that I started to write. Last season he brought out a number of new contrivances, possibly because he thought conditions here demanded some things different from what he used in the East. One of his labor-saving conveniences, and the only one I shall



Dividers like those used in the Aspinwall hive used in a double-story ten-frame hive, ordinary construction.

attempt to mention at length in this letter, is his trolley-pole telescoping hiving-basket for securing way-up-in-the-air swarms of bees. The photograph will make the whole idea clear. The basket fits into the upper end of the pole, and by means of the window-cord the basket is soon "histed" right under the swarm; and by means of a pole with a hook at the upper end the bees are jarred into the basket without any apparent trouble whatever. The wire-cloth container may be held near where the swarm has alighted, or it may be allowed to rest against a tree near by, and all flying bees of the swarm will soon join their fellows in the basket. Easy, isn't it? Another good feature about the contrivance is that the whole affair does not have to be lugged about the yard in one piece. The basket being easily removed, it is slipped from the pole, and the bees carried any distance, a cloth cover having first been pulled over them.

Oakland, Cal.

[If we are not mistaken, the original inventor of this extension pole was the late

Miles Morton, of New York State, a brother-in-law of Mr. Niver, alluded to by our correspondent. Full particulars in regard to the construction, dimensions, etc., of this swarm catcher, are given on page 173 of our Mar. 1st issue for 1899.—Ed.]

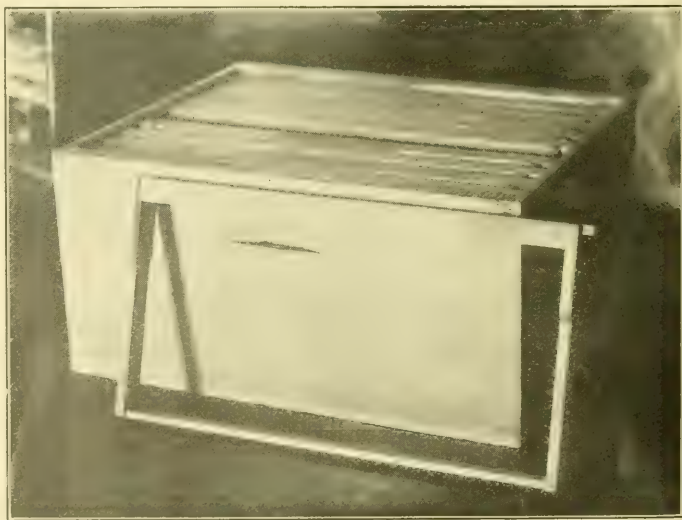
THE ASPINWALL NON-SWARMING PRINCIPLE APPLIED TO AN ORDINARY HIVE

Not an Entire Success, but Enough so to Justify Further Experimenting

BY A. V. SMALL

In the last edition of the A B C and X Y Z of Bee Culture there is a description of Mr. Aspinwall's non-swarming comb-honey hive. One feature of its construction is a movable side so that the brood chamber can be expanded laterally, thus making room for twice the usual number of brood frames. Three or four weeks before the swarming season, the sides are moved outward, and the brood frames are set about $1\frac{3}{4}$ inches apart. These spaces are filled with slatted partitions, or dividers, of the same size and shape as a brood frame. The slats are perpendicular, and are a bee space apart. This makes a large airy brood chamber with more than twice the ordinary clustering space. Mr. Aspinwall states that he has had no swarms from colonies kept in these hives.

Last summer I applied the Aspinwall principle to an ordinary hive by making ten slatted dividers the size and shape of a brood frame. The last of April I set another hive body on top of the brood chamber and placed half of the brood frames in each hive body, alternating them with the slatted dividers. Now, the brood chamber is composed of two sections—one above the other—each section containing five brood combs



The right way to assemble the Hoffman frame.

and five slatted partitions. This gives a big airy brood chamber, which goes a long way to make the bees contented. They cluster in the slatted dividers, and never hang out. There is so much space between the brood frames that the colony never feels crowded. Two comb-honey supers with shallow extracting frames on the sides were placed on top of the brood chamber. Half of the sections in the lower super contained combs partly drawn. It was in these that work first started, and soon spread throughout the super. The upper super was placed underneath when the first one was about three quarters full.

In this locality the flow depends on the weather, and the weather is very uncertain. If we start the bees in the second super before the first one is pretty well filled, we are apt to get more unfinished sections than full ones.

The experiment was tried with a rousing strong colony from stock that has the reputation of swarming twice a year. They got through the main honey flow in good shape. The ten combs were well filled with brood all of the time, and the colony stored a good surplus of nice section honey. About the first of August they built queen cells. In one I found an egg, and in another a young larva. These were destroyed; and as the hive stood in a very warm place I set one-inch blocks under the corners of the hive and slid the cover forward so that it rested on the back cleat. Plenty of ventilation is one of the best things I know of to keep down swarming, especially in very warm weather.

The colony thus ventilated built no more queen cells; and when smartweed began to flow they filled more sections, besides storing a goodly supply for themselves. The slatted dividers were removed, and the brood chamber reduced to one section as soon as brood-rearing began to slacken in the fall.

With this large airy brood chamber, with partly drawn combs in the lower super, and plenty of ventilation during the very warm weather, I think the tendency to swarm is no greater than that in a ten-frame two-story extracting hive. The queen is not discouraged in her egg-laying, with the result that there is always a strong working force ready to take care of any honey flow that may come.

While an apiary of such hives might not be practical, a little experimenting will do no harm, and may throw some light on the swarming question.

North Topeka, Kansas.

[This arrangement has been suggested before; but Mr. Aspinwall has not recommended it. Whether it would not accomplish the result sought at all, or would do so only partially, we can not say. If the slatted divider in alternation with the brood frames or section holders is the basic principle of his invention, then it would seem as if the same device, even though there were no extra slats back of the end bars, on the plan

here shown and described, would prevent swarming to a very great extent; and why not? The object of the slatted dividers is to prevent overcrowding of the brood nest. The bees, instead of clustering *outside* in front of the entrance, blocking the entrance (which ought to be wide open to provide for the necessary ventilation) will be *inside* the hive, where they can do some good.

It has been suggested that, when there is a lack of ventilation, the brood is liable to become overheated; that to prevent this the bees that are on the inside, where they should attend to the feeding of the brood, are forced outside; that the overheated or neglected brood and the idleness of the "house" force, if we may use the term, induces swarming. However this may be, we can not say. At all events, it is a fruitful subject for discussion.

We should like to hear from some of our other readers who may have tried the Aspinwall slatted dividers in the ordinary Langstroth hives. From the amount of inquiry that came in to this office about two years ago, asking if the device could not be used to prevent swarming in regulation hives, we should infer that some may have tried it. In the mean time, perhaps Mr. Aspinwall himself can throw some light on the plan tried out by our correspondent and why cells were started.—ED.]

A PRACTICAL WAY OF MAKING UP WINTER LOSS WITH A MINIMUM OF LABOR AND EXPENSE

BY E. D. TOWNSEND

What is the *best way* to make increase for one who runs about 25 ten-frame colonies for extracted honey? I have my nights and mornings principally for such work.

There are numerous plans in the bee papers and books, but usually there is an "or" in them, with a choice of some other way, and I should like a straight talk, with no "or."

Jefferson, N. Y.

G. W. HARRIS.

You will need to have your hives in readiness for the increase at the opening of the main honey flow, which will likely be from clover in your location. Here in Michigan, clover begins to produce honey any time between the 8th and the 15th of June, varying according to the condition of the weather during the spring.

The hives should be full of either drawn worker combs or frames with full sheets of medium brood foundation. We wire all our brood frames before putting in the foundation, seeing that the wires are drawn only moderately taut. The top wire can be drawn so taut as to sing some when picked with the finger. The two central wires should be drawn only until they are straight, while the bottom one must be left quite slack for best results. In fastening the foundation in the brood frames, be sure to see that the wedge is well seated in the sawkerf, otherwise the foundation with the weight of the bees adhering to it may drop out. Use an Easterday wire-imbedder.

As you are a carpenter you will likely have no trouble in nailing up the hives for your increase. In buying bees on Hoffman frames we found some of the end-bars had not been nailed on right. The V and flat edge of the end-bars should be nailed one way only. The illustration on page 278 makes this clear.

You have 25 colonies. As last winter was very hard on bees you will likely lose five of them. Five others may be too weak in numbers of bees to amount to much during the clover flow. This will leave fifteen strong colonies from which to make increase and get a fair crop of honey. At the very first signs that clover is beginning to yield honey, remove the fifteen strong colonies, and in their places put hives containing nine frames with full sheets of foundation, and one comb of brood with the queen from the old colony. Now place a queen excluder on top, then an upper story of extracting combs; then above this, as a third story, put the old brood nest. The tenth frame of foundation from the lower story can now be put in the third story to replace the brood comb removed.

When the bees surely have enough room without it, why is the middle story of extracting combs given at this time? I'll tell you, and this is a valuable "kink." We get the finest queen cells imaginable built in the third story. Were we to set this brood nest directly on top of the new swarm, as is customary, but few would build cells; but by isolating them up in the third story, separated from the brood by this story of empty combs, they do not hesitate to build lots of very fine queen cells.

Eight days after the division is made, the brood and queen cells in the brood nest at the top will be sealed; but as it is somewhat dangerous to handle queen cells at this age, and as we would prefer to have more bees hatch out of this old brood nest before making the final division, we leave them two days longer. On the tenth day, therefore, prepare as many bottom-boards upon new stands as you have made divisions, and remove the old brood nests—one to each of these bottom boards. When doing this, tilt up the bodies and look under for queen cells and mark upon the cover the number of frames containing good likely-looking queen cells for future use. There are usually some exceptions to the general rule, so we may expect that once in a great while no cells will be built, even when the brood is isolated, as I have explained. If one or two should be discovered without cells, go to one of the marked ones having frames with cells to spare, and exchange a comb of brood for one containing cells. This is the most simple plan of increase I know of; and any one with a season's experience ought to make a success with this method.

We will now suppose that you are not quite satisfied with the amount of increase obtained so far, and you want still more bees. All right. Locate five more bottom boards, the same as you did for the first di-

vision. (I would not do this until the next day after the first division, as this will give the old bees that you carried with your old brood nest to the new stand a chance to go home, so you will not have so many bees to bother you the next day). Place an empty body on each. Now go to five of your colonies marked "cells to spare," and remove a half of their combs containing about half of the brood and bees. One of the queen cells they contain should also go with each new colony. Now you have ten hives, each containing five combs of brood, and a good queen cell. Place these five combs of brood in the center of the hives from the five dead colonies I imagined you have, take their empty combs and fill out the empty space in these ten hives, and the work is done. It is all very simple; but be careful not to jar these ten-day-old queen cells too much or they will be spoiled.

If one has enough drawn combs, more of these brood nests can be divided provided there is a plenty of queen cells (and there usually is). If there is a buckwheat or fall flow these half-brood-nest colonies will usually fill up and have a plenty of stores for winter; otherwise they will have to be fed in the fall.

Later in the season Mr. Harris' medium-heft colonies will become strong and can be given upper stories for surplus honey. With this plan the colony on the old stand, containing the old queen, will do a "land-office business" in gathering honey after removing the brood from the top of their hive. All desire to swarm is taken from them with the removal of their brood nest, leaving them in that ideal condition so necessary for best results, i. e., free from the swarming fever.

In the above I have given our latest plan of making up our winter loss at our outyards. We simply go to the yard at the beginning of the clover or raspberry flow, make the first division, and give upper-story room to the rest of the yard for at least ten days, at the end of which time we make another visit. At this second trip the brood for our increase, and plenty of cells of the very best kind, are ready. With our previous plans, extra trips had to be made to provide queen cells for this increase. With this better plan, this is avoided; and, furthermore, it costs practically nothing to produce the queens, as the little colonies are so depleted of worker bees which have gone back to the old stand that there is nothing doing to speak of until new workers get old enough for field work, which will be ample time for the queen to mature and get to laying.

Remus, Mich.

Five Swarms from One

Last year my bees commenced to swarm June 23, and five swarms in all issued from one colony. The first swarm came out three times; the second one, twice; the third one, once. Can you beat this?

La Grange, Me.

E. A. DAY.

[That is quite a record, to be sure; but, at the same time, it is rarely a good plan to allow after-swarming. If you desire increase only, it would be better, in most cases, to make it artificially.—ED.]

MAKING UP WINTER LOSS

Rearing Queens in Upper Stories by the Alexander Plan

BY G. J. YODER

Since 1875 I had used the nucleus plan for queen-rearing, generally having two compartments for a queen in a hive; but when the Alexander plan came out it was so satisfactory that I abandoned the nucleus plan.

Several years ago we had a great spring loss; but we rallied, and bought bees until we had 60 colonies at the home yard. We had 150 sets of brood combs on hand, many of which were full of honey; and as soon as a colony was strong enough a full set of worker combs, partly filled with honey, was given, the queen having access to both stories. This soon resulted in very strong colonies, some of which were managed on the Alexander plan for rearing queens; while in case of the others the upper story was removed about the time the colonies were preparing to swarm—from one to three supers put on with full sheets of foundation fastened at the top and two sides, then a queen-excluder, and finally the upper story on top of that. This latter was left on until the bees were nearly all hatched, and we found that many of those having upper entrances, made by leaving out a part of the cleat at the back corner of the excluder, had matured queens. In the meantime, the bees had been drawing out the foundation in the supers below, and storing honey. At this point we removed the upper story, containing the new queen, thus making a new colony. Or the old queen was removed from the brood-chamber below, and the young queen reared in the upper story substituted, and this upper story placed on some other colony that had no supers. Years ago I tried raising queens in upper stories but failed.

By the fall of 1906 we had 150 colonies instead of the 60 we had started with in the spring, and we had secured an average of 125 lbs. to the colony, spring count, about half of which was extracted honey. We also had 40 sets of worker comb all the way from half full to full of honey. We uncapped these a little more than half way up from the bottom bar to the top bar, and ran them through the extractor. We were thus ready to make another trial the next year.

In the spring of 1907 we had less of a loss; but we soon put into operation the same plan that gave such good results the year before. We had more queens raised in upper stories than during the previous year, and all those upper stories that we set on new stands in the fore part of the season worked in supers during the last flow. I noticed in particular that the colony that raised the first queen that I put down in the lower brood-chamber gave 178 sections of fine honey.

I may be wrong; but I attribute the success in rearing queens in upper stories by

this plan to the distance between the two brood-chambers, and to the fact that the colonies were so strong. Removing the upper stories before many sections were capped also had a good deal to do with it. I prefer select cells built under the swarming impulse, which are generally very plentiful, and come at just the right time.

Some are not successful with the Alexander plan for rearing queens in upper stories; but in this locality it certainly works finely, especially if there are plenty of brood combs on hand. We went through these two very profitable honey seasons without a nucleus, and with much less work than would have been required by the old way.

Meridian, Idaho.

[It will be seen that our correspondent touches on the point brought out by Mr. Townsend in another article in this issue; that is, that bees rear queens more promptly in upper stories if these upper stories can be separated some distance from the lower stories, so that the brood is somewhat isolated. The plan of rearing queens in upper stories has much to commend it, and very likely much of the trouble heretofore has been caused by the upper story being too close to the lower one—the one containing the queen.—ED.]

PUTTING ON SUPERS

Should the Empty Super be Placed Below or Above the One Partly Filled?

BY DR. C. C. MILLER

When considering management of supers it makes some difference whether we are talking about section-supers or extracting-supers. There are general principles that apply alike to both kinds of supers. If a super of either kind be put under full or partly filled supers, the bees are likely to begin work on it sooner than if the empty super had been put on top. Also, the further a super is above the brood-chamber, the less danger there is of the bees carrying bits of dark wax from the brood-combs to put on the cappings in the super. It will be seen, however, that, while these things are alike true for both kinds of supers, they do not make the same difference in one kind as in the other. Generally an extracting-super is filled with drawn-out combs that have been used before; and if such a super be put on top the bees will begin work in it much more readily than they will in a super of empty sections. The bees will darken the cappings near the brood-chamber in either kind of super; but dark cappings are very objectionable in sections, and not at all objectionable in extracting-combs. So it will be seen that Mr. E. D. Townsend, with his extracting-supers, cares nothing about dark cappings, and not so very much about hurrying up the bees at beginning work in the new super.

Yet, even with extracting-combs, the bees will commence work at least a little sooner

if the super be added below, and Mr. Townsend is making a mistake in his management unless he has some other reason for it. I think he has a very good reason. As he explains it, if he puts the empty super under, unless an excluder is used the queen will often go up and lay in the super. If he puts the empty super on top, the queen is not likely to go up through the partly filled super to lay in the empty one, neither is she likely to occupy the super already occupied with honey. So he saves the expense and the bother of excluders, and that over-balances the gain there might be in putting the empty super under.

With section-supers, the practice varies all the way from never having more than two supers on at a time and always putting the empty super on top, to having six or eight supers on at a time, and always putting the empty super under. The argument of the former is that, when the bees are crowded down to two supers, they hurry up the finishing, giving less time for darkening, and resulting in fewer unfinished sections. Those, however, who use this plan successfully, use pretty large supers, which makes a difference. An objection to the plan is that, if you crowd bees so as to hasten the finishing, you are doing something that will at the same time be an inducement toward swarming.

Let me now refer to my own practice with section-supers, without saying by any means that I know all about it, for I've been all the while learning, and, likely enough, may make some change next year. Besides, there are times when it's a good bit a matter of guessing as to what is the best thing to do.

One thing I want is to have lots of room—not merely plenty of it, but abundance of it, so as to have whatever advantage there may be in abundance of room to prevent swarming. If there are bees enough to fill six or eight supers, then why not give them? Another desirable thing, as already intimated, is to get the bees started as soon as possible on the new super, and that means that, *generally*, the added super will be put under. It may be sometimes that there is a question as to whether the bees shall swarm or not, the thing being so near on a balance that an added super shall have the deciding vote, the vote being for swarming if the super is above, and against swarming if it is below.

To hasten the start in the super, a bait section is the thing. Bees seem to start on it just as soon as they would start in an extracting-super. In a poor season I've had the bait sections filled and sealed, all over the apiary, and not a section of foundation drawn out beside.

The second super will usually be put under the first about as soon as the first is half filled. If the season be poor, and the bees are making slow work on the first super, it may not be worth while to give any second super. If the season be very good, with every prospect of a big harvest, the second su-

per may be given before the first is half filled. Indeed, it may be given when only a fair start is made in the first. If there are bees enough to fill the two supers, they may as well fill them. It seems as if the harvest should be a trifle greater than if the bees do any waiting for room. With a strong colony and strong prospects, not only may an empty super be put under the first, but an empty super may also be put on top of the first super. I have practiced this putting an extra empty super on top for only a few years, but so far I like it well. It acts as a safety-valve. It may happen that the bees need it, and it's there ready, and the bees can take to it whenever they feel like it. If they don't need it they can let it alone.

Suppose, now, we have on each strong colony three supers. When the bottom one is half filled—sooner or later according to the strength of the colony and the prospects—the top super will be put down at the bottom. In a few cases this top super which is now put below will have a start made and some honey in it. This shows that it has done good, and without it the bees would have been crowded to their harm. Most of the top supers, however, that are now put down will show no start in them. Yet, even so, the bees have been in them a little; and when put down the bees will probably take to them just a little sooner than if they had not been on at all.

There is another reason for having that extra empty super on top. It gives more room, and the supers are a little cooler on a hot day. The bees have a comfortable feeling that they have all the room they want, and will be less inclined to think of swarming.

Still another reason: After an empty super has been on top a few days it may look as if the bees had never touched the foundation, none of it being drawn out; but if you look closely you will see that they have made more secure the fastening of the foundation to the topbar of the section. Occasionally a starter may be so lightly fastened that a full force of bees suddenly thrown upon it would break it down. The bees will fasten this securely before it is put down. Even if there should be a breakdown in the top super, it will have no honey in it, and will not be as bad as a breakdown below.

When the top super is put below, a fresh empty super is put on top. This course is continued till near the close of the harvest, the top super being put below as fast as it is needed, and a fresh super put in its place. Of course each super is taken off as soon as finished—often quite a little before all the sections in it are finished, but while the corner ones are not quite finished, and perhaps a few at the sides. The unfinished ones are assembled in a super and returned to be finished. In a good season there will be on some hives as many as seven supers at a time, and they will be all full of bees with the exception of the top one. It seems as if the harvest would be at least a little less if the bees were crowded into smaller space.

When it appears that the harvest will soon close, the top super is not put down. It is left on top where the bees can work in it if they really need more room. There is less danger then that crowding will induce swarming, and swarming thus late will not interfere so much with the harvest.

I have tried putting the most advanced super further down from the top in order to have it finished sooner; but I'm not certain there is any thing gained by it. The bees finish about as fast on top, and a super that has from two to five supers under it is not likely to have its sections darkened by bits of dark wax from the brood-combs.

Marengo, Ill.

LESSONS LEARNED FROM MISTAKES IN BEE-KEEPING

The Danger of Trying to Make Increase Too Rapidly

BY W. A. DUNTON, M. D.

Mistakes have often been more instructive for the guidance of others than proper procedures, because, when all the dangers are known, it is easy to steer clear of them. That others may profit, I will relate a few of my own mistakes in beekeeping.

Much of my trouble was caused because of an eager desire to increase the number of colonies too rapidly. I divided one of my best colonies by removing four frames, bees and all, to a new location. I intended to leave the queen on the old stand; but, instead, I took her with the nucleus. The result was that the old workers returned, and she was left with too few bees, and it required a long time to build up again. The honey-flow being good, and the bees in the old colony very numerous, they built drone comb rapidly, even on the lower half of full sheets of foundation. They made ten queen-cells on one comb besides several on another. Here was my opportunity. I shook off every bee, carefully cut out the queen-cells, fitted two into each of four combs, made five nuclei of two combs each, with all adhering bees, placed each comb containing the cells between the other two in each nucleus, closing the entrance with grass in accordance with the Somerford plan.

One lot was suffocated; two others lived, but built no queen-cells, while two only, out of the five, raised queens and lived by dint of constant additions of brood and honey.

Examining them I found all ten of the queens dead (I had shaken them to death while so carefully removing the bees before cutting out the cells).

HOW LAYING WORKERS WERE GOTTEN RID OF.

The bees of one of the two that hatched queens became excited one day when I opened them, and killed their queen before she had laid an egg. Discovering this a few days later I gave them a frame of brood from which they hatched another queen.

This queen was killed in the same manner. I gave them another frame of brood, and they capped over all the brood but started no queen-cells.

On my next visit I found a few eggs scattered around irregularly over two of the combs. Thinking this was something new I examined them again in a week, and the cells containing the eggs had been raised up into drone-cells; and the fact that I had laying workers slowly dawned upon me. I shook every bee out of the hive, 200 feet away, and then gave them another frame of eggs and brood. They refused to raise a queen, and the drone-eggs kept coming. I then united them with another colony, and had no more trouble.

MUTILATED DRONE BROOD LEFT IN THE COMBS.

I had a good colony which had been taken from the side of a house with great difficulty, and which had been installed in a hive with a superful of full sheets of foundation drawn out and partly filled with honey. The brood-chamber was full of brood, and every thing was booming. "Now is the time," thought I, "to make two colonies out of one." I gave the super to the colony on the old stand, carefully shook off all the bees except a few young ones, shaved off the heads of all the drone brood, and turned the new hive at right angles to the old hive.

In two weeks they had reared a queen, and the hive was packed with bees, but there was no honey. The drones had putrified in their cells, and the young bees had not been able to carry them out. The odor was suggestive of the smell of a fertilizer factory. However, in time they cleaned all the cells and the hive was sweet again. Just at this time the nectar failed and I had to feed both colonies.

A LARGE SWARM LOST.

In another apiary five colonies were placed close together, two of them above the other three. I moved one of the upper ones away, and the returning bees went into the strongest of the lower colonies that was already full of bees, and two days later a large swarm departed for parts unknown. The removal of three or four frames of brood from the strong colony would have saved my nice swarm; but that is another example of one of those touching events in human life mentioned by Whittier in his poem "Maud Muller"—"it might have been."

TOO MUCH ROOM A DISADVANTAGE.

Shaking all the bees from the combs of a strong colony I placed the brood over a small queenless stock. However, the honey-flow was poor in that vicinity, and the bees had twice as much room as they needed all summer. They should have been given four frames of brood, and treated as a nucleus in a single brood-chamber without a super.

I gave supers to several weak colonies, and thereby put the bees back by giving them too much space to keep warm, thereby curtailing brood-rearing.

COMBS MELTED DOWN.

I made a nucleus of four frames of brood without bees enough to protect the combs. As the hive was not properly shaded, the combs melted down, the larvæ were cooked by the heat of the sun, and the bees were dead in a heap on the bottom of the hive.

VIRGIN KILLED LAYING QUEEN.

I had a small swarm from a nucleus, and put it back without killing one of the queens. A few days later I found drone-cells built from worker comb; and as they occupied a compact little space in the center of one comb I concluded that my remaining queen was probably not impregnated, so I placed the hive over a strong colony, and evidently the bees did their duty, as that colony is booming to-day.

NO HONEY LEFT IN THE BROOD-CHAMBER.

In July I found one super full of honey, and I removed it. A few days later I lifted that colony to see how much was in the brood-chamber, and found that they had no honey at all, having depended upon that in the super. The nectar failing just then, I had to feed them.

In September I examined a super and found from 20 to 25 lbs. of nice honey. I went out there a week later to get it, and in place of the fat combs of honey I found them almost empty. The handling had disturbed and alarmed them; and in order to assure themselves of its safety they had removed it to the brood-chamber. Truly, as Burns says,

The best-laid plans of mice and men
Gang aft aglee.

I have said nothing about any of the "smart" things done with my bees, as these notes are supposed to relate only to my mistakes, which I hope may be of some slight service to my brother novices in bee culture.

Los Angeles, Cal.

A SWARM THAT DID NOT CLUSTER

BY WM. GRAMS

In Siftings for Dec. 15 mention is made of swarms not stopping to cluster. This seems to be an unusual stunt, and so I should like to tell of an "experience" which I had last July.

As a building contractor I went about three miles into the country to bid on a small country schoolhouse. Bids were received at the clerk's farm. The clerk, an old Scotchman and an old acquaintance of mine, had gotten a hive of bees from me some ten years previous; but from lack of attention they had not increased, for the reason that all swarms that ever issued went off. The people at the farm were sure that some of the swarms had gone off without clustering. I thought, of course, that they had not seen them. At any rate, after three years there was only one stand of bees left; but there was an empty hive

there which had always been ready to put the new swarm in.

As soon as I came to the place my old friend took me out to see the bees. It was an ideal place among the fruit and shade trees, where there was plenty of room to fly. He asked me if I thought that they had already swarmed and gone off, as usual, or whether they would swarm soon. I really did not know. Of my twenty colonies, not one had swarmed up to that time. The hive was crowded with bees. I told my old friend that, judging from the number of bees in the hive, they should have swarmed before, but that it might be that the queen got lost in the attempt to swarm, and that possibly, as soon as they were ready again, they might come out. I had to explain, as usual in such a case, what I meant by getting ready, which I did to him and half a dozen others who were then waiting for the opening of bids for the schoolhouse.

We were all in a room ready for this occasion not ten minutes after looking at the bees, when some one came in and reported that the bees were going off. We went out just in time to see the last of them going over the tree-tops. The boys followed them which was easily done, for it was such a large swarm that there was a cloud of bees. They followed them while I got the hive ready.

The bees went about half a mile and then began to circle around a large scrub oak. I had the hive ready by that time, and about a dozen of us went over to the tree with the empty hive into which I intended to hive the swarm after it had clustered. When we reached the tree, most of the bees were still flying around; but many were alighting on the trunk of the tree, where I found a hole about three inches in diameter, about four feet from the ground. The bees were running into this hole at full speed, without clustering. I had the hive; but there was no chance to do any thing with it. They were running into the hole so fast that I supposed the queen had already gone in; but I continued to watch the mass of bees as they ran from the ground up toward the hole. To my surprise I found the queen, a fine specimen, and with a lucky twist I caught her firmly by the wings and showed her to the crowd, with the statement that I thought this must be an after-swarm, and that, as there was only this one queen with the swarm, the bees would return to the old stand, which they did.

I caged the queen, put the new hive on the old stand, and in a short time all of the bees were in the new hive on the old stand. I must confess here that my experience with bees is not so extensive that I could tell whether the queen that I took from the swarm was a virgin or a laying queen. She seemed to me very slim. But the main thing was that the bees came back.

These bees surely did not cluster, nor did they make any attempt to do so; for all of this occurred in about an hour.

Sturgis, S. D., Jan. 5.

Heads of Grain from Different Fields

Swarms Issue Before Cells are Sealed and After Queens are Hatching

In the summer of 1910 I had 34 colonies, spring count, located in a young orchard on a north slope. There was very little swarming until July 4; but from then on, swarms issued to about Aug. 1. In a majority of the cases I examined the parent colony after the swarm issued, and in almost all cases found that young queens had already issued or were gnawing their way out. In a number of instances the virgins came out while I was transferring swarm cells to queenless colonies. I well remember my first experience of that kind. I cut out a fine cell from a hive where a swarm had just issued, and laid it on a bit of board in the shade of a hive while I was cutting out another and closing the hive. When I looked at it again a bee was crawling all over the outside of it, and it was empty. I thought it could not be a queen, because it had not had time to hatch; but when the same thing was observed again, I "tumbled."

In the summer of 1911 I had my bees on a south slope with very little shade, and that from boards laid over the hives. Bees began swarming during the early part of June, and kept it up actively till the last of the month. By that time it was getting dry, and the previous abundant flow of honey was tapering off. My previous year's experience led me to suppose that swarms do not generally issue until young queens are ready to come out; but that season it was just the opposite. When I went through parent colonies I found a majority of the queen cells still unsealed, and had difficulty in getting any number of sealed cells from my best colonies to use in raising queens. I think all cells opened in hives from which swarms had just issued showed the queen still in the grub stage—at least none were ripe, so far as my memory serves me. It completely upset my previous year's experience.

Rains came about the middle of July, and the fall flow was good. About the first of August, swarming began again and continued up to the 15th of the month. About ten or fifteen per cent of the colonies swarmed at this time. As in June, the bees again seemed to be swarming long before their queen cells were ready to hatch. Probably, taken as an average, my bees were not quite so well provided with storage room in 1911 as in 1910. In 1911 they were also more exposed to the sun.

But allowing for the two above-named differences I am myself inclined to charge the difference in haste to swarm more to the difference in the season and honey flow of the two years.

Pellston, Mich.

J. D. ROBINSON.

Clipped Queens Not a Nuisance

The thought has often occurred to me that beekeepers have a great advantage over those who handle other live animals because of the uniform action of bees under certain conditions. It seems to me that we should know just what bees will do if treated in a certain way; and yet, was there ever a business in which there is so much disagreement among the masters of the craft?

Some claim that clipped queens are a "nuisance." I can't see it that way, for I have clipped all of my queens for the past 25 years, and I can not recall that in all that time a single queen has been killed or injured by the bees on account of having been clipped. I always cut off about two-thirds of both wings on one side, and my bees hardly know what a queen would look like having both wings whole. Of course, queens reared in the fall keep both wings until clipping time in the spring, which is just as soon as I can handle them without exposure to cold. I clip to save time, work, and swarms. I am sure that I have saved a great many dollars' worth of bees by having all queens clipped. I admit that, if I were using very large hives, and had my fields all overstocked, it is likely that clipping could be dispensed with. Under such conditions there would be very few swarms. But the average beekeeper will save much work by clipping. My hives are all placed close to the ground, and during the swarming season I keep the grass mown smooth around the entrances. When a swarm issues, the attendant can usually find the queen as soon as she leaves the hive.

I often pick up a queen, cage her, set the hive (from which the bees are still issuing) back a few feet with the entrance reversed, put a burlap over it, and, after placing a prepared hive on the old stand, put the caged queen in the entrance and go about other work, not having expended more than thirty seconds of time, well knowing that the bees of the swarm will return to the old stand reasonably soon, whether they cluster or not.

H. E. Harrington, page 143, March 1, says that he had to break off limbs and climb trees "just the same." I can't see why. I clip to avoid climbing trees and sawing limbs, and I do avoid it. My only failures have occurred where colonies that were supposed to have clipped queens had superseded and reared young queens. This happens only once in a great while. If you are sure your swarm can not combine with another that has a flying queen, or that they have not a virgin queen with them, you may rest assured that they will come back in due time. In cases where several swarms issue at nearly the same time, and all cluster together, it is an easy matter to divide them up and distribute them where wanted, if all of their queens are in cages. Possession of the queen is the key to the whole situation; and for my part I would not think of working without this advantage; but, as I intimated at the start, it is much easier to get the bees to agree on a certain course of action than to get any sort of agreement as to methods of procedure on the part of the men who handle them.

My son, who was practically reared in the apiary, says he never knew of a queen being injured by her bees because she was clipped.

Bridgeport, Wis., March 14. HARRY LATHROP.

How to Find Where the Swarm Came from

Going out into the beeyard one day recently, I found three swarms hanging clustered. That evening, just before dark, I called my son to assist me in finding where the swarms had come from, as I always like to learn this; and my plan works so nicely, and is so little trouble, I feel as if I should write it up for the benefit of others.

I have boxes of $\frac{3}{8}$ stuff, $3\frac{1}{4}$ inches wide by 5 high, and $5\frac{1}{4}$ long inside, with the bottom nailed fast. A $\frac{1}{2}$ -inch hole is bored in one end, and covered with wire cloth for ventilation. The top is the same width as the outside of the box, but an inch or two longer. A $\frac{1}{2}$ piece of board that is a little smaller than the inside of the top of the box is nailed on the bottom of the cover to keep it from slipping off.

When hiving one or more swarms I put about a teacupful of bees in the box and set it in the shade, and mark which swarm the bees are from. About sundown, or later if the bees work late, they are jarred down to the bottom of the box by setting it down hard. I lift the top off and dust enough wheat flour on the bees in the box to coat them lightly. I then dump them out on a hive cover; and if they do not fly readily they are dumped again on the ground. They will soon return to the old hive; and if there are several "boxes" to locate, an old sack can be thrown over the entrance and another box dumped, bees located, and so on until all are disposed of.

In order to work well the bees should be confined away from the swarm for a few hours. If the swarm has issued the same day, they are all right. If liberated while bees are flying freely they seem sometimes to be confused, and will try to enter other colonies, especially where young bees are playing. So, after the yard has quieted down toward night is the best time. But if the yard should quiet down before a rain, or if it should turn cool, the bees will go home just as well. Do not wait until nearly dark or the bees may not get their bearings. Too much flour makes the bees slow. It is easier if there is some one to find which hives the bees are entering.

Port Orange, Fla., March 26.

J. B. CASE.

Italian Bees Swarm Excessively

W. C. Mollette, Feb. 15, 1912, p. 100, complains of the excessive swarming of Italians. Many in this vicinity have had the same difficulty with Italians. A neighbor of mine who found a bee-tree asked me to assist him in cutting it and hiving the bees. The

following year they swarmed three times, and the first swarm also cast a swarm. Almost everybody here prefers black bees because they do not swarm so often.

CROSS BETWEEN ITALIANS AND BLACKS DESIRABLE.

I try to keep a cross between Italians and blacks, as I think they are superior to the Italians, and they seem to be the best all-around bee for this locality. I have a black queen three years old that was mated with an Italian drone, and I never saw better hustlers than her bees are; and as to their disposition, they are the quietest ones I have.

Webster Springs, W. Va.

L. S. WEESE.

Mr. Editor:—Will you please answer these questions for me?

1. Is it important to wire the brood-frames when starters are used?

2. I wish to make an increase this summer. Will you give me the best method? What month is best for this?

3. I bought three hives of bees during the past winter. The supers are on them, and they contain some honey. Should I take them off now, or will the bees use the honey this spring in brood-rearing?

4. What time should supers be put on the hives? White clover begins to bloom about May 10 to 15 in this locality.

5. I have some transferring to do during fruit bloom. At what time of day should this be done? Could I take the virgin queens that I catch at the second drive and introduce them to a frame of brood from some other hive to make increase?

6. Do you think I could produce comb honey without the use of separators?

7. When is a good time to paint hives?

8. Should the hives stand perfectly level or slant to the front?

Boring, Ky., March 22.

JESSE WOODWARD.

[1. It is almost as necessary to have wires when starters are used as full sheets. In fact, we do not see how any up-to-date beekeeper can get along without wiring his frames. The cost of the wire is insignificant when compared with the saving in the breakage of combs while handling or doing extracting. Without wires, combs (whether from full sheets or only starters) have a tendency to sag after they are drawn out, even though all the cells are worker at the start; and this sagging renders them unfit for worker brood.

2. In this issue you will find several pretty good methods for making increase explained. The Alexander plan has been spoken of very highly. It is as follows: When your colonies are nearly full enough to swarm naturally, and you wish to divide them so as to make two from one, go to the colony you wish to divide. Lift it from its stand and put in its place a hive containing frames of comb or foundation, the same as you would put the swarm in providing it had just swarmed. Now remove the center comb from this empty hive and put in its place a frame of brood, either from the hive you wish to divide or some other colony that can spare one, and be sure to find the queen and put her on this frame of brood in the new hive; also look it over very carefully to see that it contains no eggs nor larvae in any queen-cells. If it does, destroy them. Now put a queen-excluding honey-board on top of this new hive that contains the queen and frame of brood with their empty combs, then set your full queenless colony over the excluder. Next put in the empty comb or frame of foundation, wherever you got your frame of brood, and close the upper hive except the entrance they have through the excluder into the hive below. Now leave them in this way about five days, then look over the combs carefully, and destroy any larvae you may find in the queen-cells unless they are of a good strain of bees that you care to breed from, for they frequently start the rearing of queens above the excluder very soon after their queen has been placed below the excluder. If so, you had better separate them at once; but if they have not started any queen-cells above, then leave them together ten or eleven days, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured, so it will be capped over and saved; then separate them, putting the old hive on a new stand. It will then be full of young bees mostly, and capped brood, and in about twenty-four hours they will accept a ripe

cell, a virgin, or a laying queen, as they will then realize that they are hopelessly queenless. We would advise you to give them a laying queen, as we never like to keep our full colonies for even a day longer without a laying queen than we can help. In this way you have two strong colonies from one, as you have not lost a particle of brood nor checked the laying of your queen; and with us it almost wholly prevents swarming. This is the way we have made our increase for several years, and we like it much better than any other method we ever tried. In doing so you keep all your colonies strong during the whole summer, and it is the strong colonies that count in giving us our surplus.

As to when is the best time to make increase, it all depends on conditions. If you desire a honey crop, make increase *after* the honey-flow. At such time it will usually be necessary to practice stimulative feeding. If increase without reference to a honey crop is sought, then we would start dividing along about the last of May. When increase is being made in the spring or early summer, it is usually not necessary to feed.

3. If the supers contain sections partly filled, take them off. If they contain extracting-combs, and stores are scant in the brood-nest, leave them on. Better still, select out the light combs in the brood-nest, and put in their stead heavy combs from the super and then confine the bees down to one hive body.

4. Supers should be put on the hive about the time the bees begin to whiten the tops of the combs after the honey-flow begins. Honey does not begin to come in until about a week after the first clover begins to come out, so that you will need to put on supers somewhere from the 20th to the 25th in the average season; but better not go by the calendar but by the season.

5. We would select any hour in the day between ten and two o'clock. If possible, do the work in a sheltered location away from the wind, as some brood is liable to be chilled while being transferred.

Yes, you can catch the virgin queens at the same time, as explained.

6. You can produce comb honey without separators, but it is very unwise to do so. When separators are used, comb honey will bring anywhere from one to five cents a pound more. It is never economy to try to get along without them. If there could be a general law to compel all producers to use separators, it would be much better for the comb-honey market.

7. Usually after the honey-flow when work is slack.

8. Hives should slant to the front, so that water will run out of the entrances after a beating rain.—Ed.]

Ohio Convention Report

The annual convention of the Ohio Beekeepers' Association was held at Springfield, Feb. 21. The association was favored with the presence of Dr. E. F. Phillips, of the Bureau of Entomology, Washington, and Chief Inspector N. E. Shaw, of the Department of Agriculture, Columbus. Mr. Shaw delivered a very able address on bee diseases in Ohio, which was highly appreciated.

Mr. E. R. Root and Dr. Phillips at the evening session gave addresses illustrated by the stereopticon, which were very instructive and interesting.

Mr. Henry Reddert read a paper during the day session on sweet-clover forage in and around large cities, which provoked considerable comment.

Mr. E. R. Root's talk, entitled "Recent Developments on the Wintering Question," was well received and discussed, as was Inspector Beard's paper entitled "What has been Accomplished by Inspection."

The following officers were elected to serve during 1912:

President, D. H. Morris, Springfield, O.

Vice-president, J. G. Creighton, Harrison, O.

Secretary, N. E. Shaw, Columbus, O.

Treasurer, C. H. Weber, Cincinnati, O.

The following is the Executive Committee:

A. N. Noble, Springfield, O.

Glenwood Beard, Magnetic Springs, O.

E. R. Root, Medina, O.

J. W. Arthur, Springfield, O.

C. E. Leavitt, Mechanicsburg, O.

Fred W. Hammerle, Hamilton, O.

The next meeting will be held in Columbus.

A. N. NOBLE, Sec.

Our Homes

A. I. ROOT

Beloved, let us love one another: for love is of God; and every one that loveth is born of God, and knoweth God. He that loveth not, knoweth not God, for God is love.—1. JOHN 4:7, 8.

The point I wish to consider in the above text is the expression, "God is love." Somebody has said that "love is God." What is love in the above text? We often speak of people being in love—a boy or a girl, a man or a woman. This affection between the sexes *should* be love; but how often it is a very poor excuse for real love! Our newspapers are full of tragedies that come from what is called love. A man says he loves a woman; and because she will not love him or will not marry him, he kills her and then perhaps commits suicide. Is there any real love in such a transaction? Far from it; and when we get right down to it, the love between the sexes is, as a rule, but a poor low kind of selfish love.

It *may* be, and God intended it *should* be, one of the highest attributes of the human family. It should be one of the most sacred and ennobling things that we meet with in this world of ours. It is, in fact, the foundation stone in building up the human race and Christian character.

The divorcees that are getting to be so popular, and that we hear so much about, are results of this low kind of love, or only a selfish love. The love mentioned in our text is very holy and sacred—the very opposite of selfishness. God's love is for all humanity—good, bad, and indifferent. The love between the sexes, of which we have been speaking, is oftentimes, as I have said, but selfishness. Real true love, divine love, as spoken of in our text, is sacred and holy, and should result in doing good to *everybody*, lending a helping hand wherever an opportunity offers.

Some of our leading agricultural papers are doing quite a little lately in disclosing frauds, and they are, without question, helping humanity greatly. Our own journal (through your humble servant) as you may be aware has done quite a little along this line, and I have prayed most earnestly that God might help me to do my criticising with "love" in my heart and in a Christian spirit. While having this matter in mind I ran across the following clipping which I make from the *Sunday School Times*. I wish you would read it over, and then read it again:

THE POISON OF CRITICISM.

Critical thoughts and words are usually unloving. Therefore such criticism is poisonous—always to the one who expresses it, and often to the one who hears it. But it is so popular! Try to live one day without speaking a critical word or thinking a critical thought of any human being, and see if the habit of criticism has not been popular with you. Test it as you listen to the conversation of others—but don't criticise them if you find it is popular with them! Love them out of it instead. Only love will crowd criticism out of ourselves. And we need to be cleansed and purged of it wholly, completely, and for ever. It is so subtle, so inviting, so spon-

aneous, so attractive, so devilish, and so deadly! Our sin-habituated natures are so shot through and through with this poison that only a miracle of change can help us. Christ will work the change. When he is overwhelming us with his infilling presence, we do not poisonously criticise; we cleansingly love.

The above almost startled me when I first read it. I said mentally, "Thank God for this kindly warning when perhaps I needed it most." God knows there *is* great need of kindly criticism of the way many men, especially evil-disposed men, are doing business in this world. I know by experience how hard a matter it is to show up fraud and injustice, and do it always in a Christian frame of mind. The loving and dear Savior said, remember, "Love ye *your enemies*, do good to those that hate you." It almost startles me yet when I think of what is implied in those wonderful words. Years ago I told my good old mother that those words came from heaven, and were heavenly and not of earth. Let me give you a little practical illustration. Some days ago I sent to a great seedhouse for some garden seeds. Among other things I ordered some Golden Bantam sweet corn and also a like quantity of black Mexican sweet corn. I planted two rows of the Golden Bantam, and it came up promptly, almost every seed germinating. The third row was planted to the black Mexican, and scarcely a seed germinated. In ordering some more seed a few days later I mentioned my trouble with the black Mexican corn, and suggested that I thought they ought to know about it. No reply came. Some time later I had to mention that some of my order had not yet arrived, and spoke again of the black Mexican corn that would not germinate, and asked if some sort of reply should not be given me. After waiting a little time, and not hearing a word, I turned to their seed catalog and found the following note of warning or contract between themselves and the purchaser.

While we exercise great care to have all seeds, bulbs, and plants pure and reliable, we do not give any warranty, express or implied. If the purchaser does not accept the seeds on these terms and conditions, they must be returned at once, and the money that has been paid for the same will be returned. We can not afford knowingly to sell seeds doubtful as to vitality or purity. We test our seeds before sending out, and should they prove defective in germination or purity when properly planted and cultivated, we will refill the order free or refund the price paid.

I read it over and felt provoked, and decided it would be no more than fair to present the whole matter in our journal and discuss it in regard to the responsibility of seedsmen. Then I thought of the passage I have quoted from the *Sunday School Times*, and asked myself the question, "Is there nothing in my heart but love for these seedsmen, prominent seedsmen, who issue great nice catalogs, and have always enjoyed a good reputation?" Is there nothing but

love in my heart for these friends of mine (for I am sure they are my friends), while I think of publishing a protest against their warranty of their seed? A little later I decided to make still another trial of the Black Mexican sweet corn. I took it away on another part of my grounds and planted a long row. Almost every kernel germinated. Perhaps the weather was more favorable; but why did the Golden Bantam germinate so freely while the Mexican at first trial did not germinate at all? I have been thinking that my helper, Wesley, *may* have put a larger quantity of fertilizer on this black Mexican corn than he did on the Golden Bantam. Notwithstanding this, I *do* think the seedsmen should have made some reply of some kind; but my letters and orders were sent in at their very busiest time. Perhaps I should explain that my complaint about the Mexican seed corn was put on a separate sheet of paper so it could go to the proper one to consider. Never mind; my order went in at their very busiest season. Then I reflected that most of us do live "in glass houses," to use a familiar expression.

Just a few days ago I sent to The A. I. Root Company for a pound of Japanese buckwheat to be tested on my Florida grounds. When it came I made a protest because the package, which came by mail, contained quite a little chaff and dirt and other stuff, increasing the postage, and being of no use whatsoever. Of course this was the result of some careless clerk. If no one else received a like package of this, why—it was a very lucky chance that this one came to myself. It was the result of somebody not doing his duty. He probably scraped up the last bit in the bottom of the bin for myself, carelessly neglecting to use a sieve or something to take out the chaff. Now, I think it is certainly right to complain and tell when things are not just as they should be. Where there is a flaw in the matter that can be easily remedied, it should be before others are served in like manner. Unless you have had experience in showing up frauds, showing up irregularities, lack of care, etc., you hardly know how difficult it is to adjust all these matters in a loving and kindly feeling toward poor struggling humanity.

Years ago, in my childhood, I saw a little poem that had a couple of lines that run something like this:

Let love through all your actions run,
And all your words be mild.

The *Sunday School Times* suggests that only the love of Christ in our hearts can help us to avoid and keep away from this habit of unkind criticism. I do sometimes try to restrain hasty and severe criticism. A great many times I have put in a word in favor of the one who is under discussion. Oh! I wish that all would try to cultivate that spirit that "thinketh no evil." There are people in this world who seem to spend a great part of their lives in finding fault. Are you one of that sort? On the other hand, may the Lord be praised, there are those who always seem to be looking for the bright side of things, and who seem to be seeing the good traits instead of the bad in almost every one they meet. Mother was one of the latter sort. Bless her memory! That same old mother used to tell us children that we should "love the sinner" while we hated the sin. When Christ or the Christian spirit finds a dwelling-place in our hearts there will be no room for what we call revenge, no room for anger, no room for vexation. While I talk of it, and while I think of it, it seems so far above the life I am living that I am afraid I shall never come quite up to that standard, but constantly waver and drop back.

In closing I wish to make another extract from the *Sunday School Times*. It is a striking figure of the way in which divine love, or God's love, takes hold of sinful humanity and lifts it up into the sunlight of truth and righteousness.

LIFTING THE SUNKEN.

"I came not to call the righteous, but sinners." A very striking method is now successfully employed for raising the cargoes of sunken vessels. A huge electro-magnet, operated from the deck of the vessel, is lowered to the submerged cargo; and if it be of a character subject to the influence of magnetism it is attracted and lifted by this power, and thus easily saved. There is a power from on high which came to seek and save that which was lost. Down in the murky depths of the waters of sin this magnet of love draws to itself sinful souls, and lifts them by its power to the bright sunlight and pure air above.

HIGH-PRESSURE GARDENING

A. I. ROOT

A NEW DISCOVERY.

We are still having them in our Florida home, but they are not all of them connected with either ducks or chickens. What I am going to speak of now comes nearer under the head Market Gardening, or, if you choose, High-pressure Gardening. A few days ago a neighbor brought over a new dish to us, which she said was made from "weeds" that grew on their place. After we had tasted it she explained that it was pokeweed, the new tender shoots being used, some-

thing like asparagus. It was one of my "happy surprises" to find that this same pokeweed, sometimes called poison, is really a delicious vegetable—much better than any of the "greens" that grow in the garden, not even excepting spinach. It comes up everywhere around here, especially where there is a piece of waste ground, making a wonderful growth in a short time. Mrs. Root has suggested that it would pay to cultivate it; and, from what experience we have had so far, I have no doubt of it. This is

another instance where a rank neglected weed is found to be a valuable vegetable; and I can distinctly remember the time when the tomato was thought unfit for food. Some people called it poison; and on looking up pokeweed in the dictionary I found, before the definition, a statement of its being sometimes considered poison.

Now, the other discovery is that it doesn't pay to fuss with old lamp-burners. In the poultry journals we are often told that it is advisable to boil them out in salsoda and water. Well, Mrs. Root had been spending a good deal of time in cleaning lamp chimneys, and had several times suggested that perhaps our oil was poor. But when we threw away the old lamp-burner and bought a new one that cost only ten cents we were agreeably surprised to find not only a much better light, but all of our troubles with cleaning lamp chimneys had disappeared, or pretty much all of them. Don't fuss with old burners. Of course, we have electricity in our home; but it is not put on until four o'clock P.M., and is turned off at twelve at night. If you get up after midnight or early in the morning you have to use a lamp. In fact, the only time I can use this dictaphone is after four in the afternoon or before midnight.

BUCKWHEAT IN THE FLORIDA SAND, ETC.

Some things will grow here in this Florida soil, while others will not. People from the North have many times been disappointed when they came to make garden and grow stuff down here. A short time ago our neighbor, Mr. Stanton, suggested that buckwheat takes kindly to the Florida soil. I sent for some samples from our home, and we were very agreeably surprised to see the buckwheat come up very quickly without any fertilizer of any account. It is now covered with bloom. I do not know that it would pay to raise buckwheat here for grain—probably not for seed; but chickens and ducks eat it with great avidity, and do their own harvesting and thrashing.

Another thing that seems to flourish in our Florida soil is the soy or soja bean. Chickens and ducks eat these almost the same as they eat green lettuce. Wild rabbits also have discovered their nourishing properties.

Rabbits in our neighborhood seem to be quite a pest. They can be fenced off with a two-foot poultry netting. The netting needs to be as small as inch mesh, however, for the young rabbits have a fashion of getting through the two-inch mesh with great facility. The past winter we have had no frost to do any damage worth mentioning, except that our sweet-potato vines were killed down and the beans and corn nipped, but started up again. Notwithstanding, I have had a very good crop of Red Bliss or Triumph potatoes, and they grew and matured in a surprisingly short space of time.

Irish potatoes have been all winter from fifty to sixty cents a peck. Our neighbor to the north has a beautiful lot of potatoes—

about half an acre in extent—that seemed to be so little affected by the Florida hot weather that I asked him what fertilizer and how much he used for growing such luxuriant vines that stood up and kept their color so handsomely. The reply was that he not only used a potato fertilizer pretty liberally (toward a ton to the acre), but he also put on a pretty good dressing of stable manure from the livery stable, paying three dollars per load for it, delivered on the ground. Some of our friends in the North would think this pretty extravagant manuring; but when you come to realize that he will probably get more than two dollars per bushel for his crop, it is not such a very bad investment after all. Our neighbor, Mr. Rood, is still making "big money" from celery and strawberries. They have had 40 cts. a quart during a great part of the winter for their berries. They are now down, however, to 25 cts. People are buying them quite liberally, and almost every day you see people going along with their hands full of baskets of strawberries for which they have paid 25 or 30 cts. a quart.

There has been considerable said about the amount of fertilizer required to grow any thing here in Florida. Neighbor Rood probably uses it as liberally as any one. On some of his big crops he has probably used two or even three tons of fertilizer to the acre that cost something like forty dollars a ton. Below I enclose a clipping from the *Manatee River Journal* for March 21:

Mr. E. B. Rood cut celery this week which will average easily eight hundred crates to the acre. At the present f. o. b. selling prices the net cash yield of this crop will be about \$2200 per acre.

Perhaps not all celery-growers have done as well as this; in fact, only a few of them, I suppose. Yet as a rule they have been doing unusually well during the past winter because of the high prices. I might mention that one car of Mr. Rood's celery went to Omaha; and another, which went off just a few days ago, went to some place in Canada. I don't know why it is that people pay such big prices for Florida celery unless it is because it has been found beneficial to the health. Celery is to the human family something like what lettuce is for ducks and chickens, especially in the winter time. Mr. Rood not only uses heavy quantities of fertilizer, but he has his ground thoroughly underdrained to take away all excess of moisture. On the other hand he has an artesian well to furnish water, through these same tiles, whenever there is a drouth.

POTATOES IN YOUR BACK YARD; A SHORT CUT FROM "PRODUCER TO CONSUMER."

I fear our department of High-pressure Gardening has been rather neglected; but right now (as soon as your eye catches these words) is just the time to wake up. I see potatoes are quoted in the Cleveland papers at \$1.50 per bushel, and old potatoes at that. New ones from Florida are \$2.00 or more; and you who buy by the peck or half-peck

are paying 50 or 60 cts. per peck; and, judging from last year, they will be 75 cts. or a *dollar* through May and June, and perhaps July. Philo has started thousands in growing their own eggs in the back yard, and the boys of America are doing wonderful things in waking up their "daddies" by growing more and better corn on an acre than the world ever heard of before.* Now, with the stimulus of high prices let us see how soon we can have some new potatoes in this same "back yard," and let us also see how many bushels can be grown on a single square rod of ground. The great world does not even yet know of the possibilities in potato-growing. Here in our Florida garden we grew "great beauties" of the Red Triumph, I think in about 50 days. We pulled them out of the hills as needed to go with our green peas, and the potatoes kept right on growing. To get real early potatoes you want to plant *whole* ones of pretty good size,† one in a hill. Have the soil very rich, and break the crust after every rain. Before you plant, have the ground *very thoroughly* pulverized a foot deep. Old well-rotted barnyard manure worked liberally is the best fertilizer I know of; but where commercial fertilizers are used they must be used intelligently. As soon as I reach my Ohio home (probably about April 20th) I expect to show the Roots and Rootlets how to grow their own potatoes. I forgot to say your ground must be well drained; and if it was ridged away up during the winter, you will be far ahead; then if a dry spell should happen to come you want some way to irrigate intelligently. The "high cost of living" and other obstacles before us is simply God's plan of teaching his beloved children important truths and lessons. Not only our prosperity but our *happiness* depends on our being bright, and ready to help ourselves, and in making "short cuts" from "producer to consumer." Now, when you have got an *ideal* little potato patch, write to "Uncle Amos" and he *may* call round to see it.

EARLY POTATOES—IMPORTANCE OF HUMUS.

When we reached our Florida home last November our garden was a great mass of

*The executive committee of the Boys' and Girls' Corn Club of Harrison Co., W. Va., recently perfected arrangements for the show at Clarksburg this fall. Contestants for the production prize on half-acre plots may use any seed corn they desire; but they are not eligible for any of the other prizes. All other contestants must use seed corn sent out from the experiment station at Morgantown or some of their own corn entered in the show last year. Handsome prizes of money and of merchandise will be given. Last year 15 counties had corn clubs and corn shows; 1800 to 2000 boys and girls belonged to these clubs, and raised by scientific methods enough fine seed corn to furnish the State for the next few years. This year the university hopes to extend this work to 40 or 50 of the 55 counties of the State. The county superintendents of schools are placed in charge of each county, and they are taking up the work enthusiastically. The university furnishes free of cost the seed corn and instructions, and sends an expert to judge the corn.

†Of course this will cost something for seed, but I think it will pay for a few for extra early.

weeds, mostly southern grasses. I said to Wesley, "I suppose it won't be possible to spade all this trash under?" "Mr. Root, I can turn it all under if you say so; but it will be some work."

I replied, "All right, Wesley, turn it all under out of sight."

He first cut it off level with the ground with a *sharp hoe*. Then he spaded a deep furrow and tramped the trash down and covered it with the sandy soil, and left my garden looking level and smooth. Now, many Florida people make a big bonfire of this trash from the garden; but our Florida experiment station has recently stated that trash and weeds turned under and rotted as above is worth about *nine times* as much as the ashes when the stuff is burned. But this is not all. Potatoes seem to delight in finding a mass of rotting vegetable matter in which to grow and expand handsome shapely tubers; and the beautiful Triumphs I have spoken of were found right in this mass of rotten hay, leaves, etc. Much has been said and written about "growing potatoes under straw;" but unless you have an abundance of rain it will be a failure besides being a deal of work. The better way is to put the tubers in wet or rotten straw, and cover them with rich soil. Well-rotted stable manure, where lots of bedding was used, is better still; and, in fact, any kind of decaying vegetable matter to furnish humus is the secret in getting large crops of nice potatoes, and getting them quickly. When wheat bran did not cost so much, some astonishing results were secured by putting bran right over the seed potatoes before they were covered. If you can get seed sprouted in the sunlight, as described in the potato book, you will be very much ahead in getting new potatoes quickly.

Now "get busy," all of you, so as to head off the "middleman" when potatoes are a *dollar a peck*. I see by the *Plain Dealer* of April 6 that old potatoes are already \$1.75 per bushel. See below:

CHICAGO, April 3.—Potatoes to-day were selling at \$1.75 a bushel, wholesale, the highest price recorded in recent years. This is contrasted with a price of 50 cents a bushel a year ago.

Impassable roads, inadequate transportation facilities, inability to get at potatoes buried last fall, and urgent shipping demand, are given as reasons by merchants for the high prices.

Housewives to-day were compelled to pay 50 cts. a peck.

THE EARLY JOE APPLE.

Although there have been several inquiries in regard to this beautiful and delicious apple, I have been disappointed since my return from Florida to find only one response to the offer of a free advertisement. It should have been published in GLEANINGS some time ago, as you will notice.

Joseph H. Black Son & Co., of Hightstown, N. J., have the Early Joe apple-trees for sale. We have them here probably 75 years old, and they bore some last season.

Philipsburg, Pa., Feb. 13.

FRANK WARING.

Now is there another nurseryman who has it for sale?

Gleanings in Bee Culture

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Editorial

HONEY PROSPECTS.

A GREAT abundance of fruit bloom and beautiful weather is being reported from all over the United States. In many localities the prospects from clover are excellent; but many say there is a great lack of bees, owing to the severe winter losses.

SAMPLES OF BROOD FOR EXAMINATION NOT TO BE SENT TO MEDINA.

We must again remind our readers that we prefer not to examine suspicious brood here at this office. We formerly did this, but now that bacteriological examinations are made free of charge under the supervision of Dr. E. F. Phillips, of the Bureau of Entomology, Washington, we forward all samples which we receive direct to him.

PERFECTLY POLLINATED BLOSSOMS MORE RESISTANT TO FROSTS.

In the *Country Gentleman* for March 23, 1912, p. 13, is a most able article on the value of bees to the fruit-grower. The old idea of bees stinging grapes, etc., is scouted, and the true value of the bee clearly shown. The writer of this article is well informed, as is shown by the following extract:

Bees are absolutely necessary to the farmer and fruit-raiser. Indeed, fruit-raising is chiefly dependent for its very existence upon bees. Of the many varieties of bees, the common honey-bee is the most valuable. Without it the orchardist would be in a sad plight indeed. Although the wind will pollinize some varieties of fruit, Nature's chief aids in her great work of producing more and better fruit are the honey-gatherers. They pollinize the individual blossoms; and as they fly from one tree to another they also accomplish the cross-fertilization so necessary to the raising of good fruit. Their pollen-baskets are filled at one tree, and part of their load is left at the next. For this reason the fruit-raiser should keep bees himself or else encourage his neighbors to do so. If he can possibly manage it, however, he should have his own bees. If he does not wish to keep bees he can doubtless arrange with a near-by beekeeper to have some hives placed in his orchard in early spring. This sort of arrangement is reported from California, both beekeeper and fruit raiser being well satisfied.

Fruit failures are often caused by wet or cold weather. At such times the bees work only in the home orchard or in the immediate neighborhood. A few sunny hours will give them a chance to pollinize the bloom near the hives; and as a rule, during such weather, they will give their whole attention to the home orchard. Since fruit bloom that is "set" will stand a lower degree of frost without damage than the unpollinized bloom, prompt pollinization may easily be the means of

saving a crop of fruit from destruction by frost. Bees are to the fruit-grower, therefore, a sort of frost insurance.

DO BLACK BEES WINTER BETTER THAN THE YELLOW RACES?

ONE of our subscribers, referring to the wintering of bees in his locality, writes that the blacks wintered fairly well, while the yellow colonies were either weak or died out altogether. It will be remembered how, years ago, we used to have to buy up colonies of black bees to make up for losses of Italians. We have never believed there was any very great difference between the black and yellow bees in the matter of wintering. In most cases which we have traced down, we have found that the bees that have wintered well have had some favorable conditions that the bees which died did not have.

One of the most favorable conditions for wintering bees is a spot that is sheltered from the fierce wintry blasts. Box hives, usually under a shed, with its back to the west or prevailing winds, often winter quite well, when Italian bees in doubled-walled hives out in the open die. Perhaps there is a lesson here in combining shelter from the winds and double-walled hives. We are coming to believe more and more that we do not attach enough importance to wind-breaks, whatever we may say about the value of double walls and porous packing. Let's have both in the future.

WHY CLOVER YIELDS SOME SEASONS AND NOT OTHERS; THE QUESTION OF LIMING.

On page 97, Feb. 15, the editor calls attention to the lessened yield of clover, and attributes it to the exhaustion of lime in the soil. I may be a little dull, but I don't see why we should now and then get an abundance of honey from clover when no lime has been added to the soil.

Middlebury, Vt.

J. E. CRANE.

As we explained in our editorials on this subject, there are many localities where there is no deficiency of lime. When clover fails to yield, the failure, in such cases, is due to other causes, such as winter-killing or drouth. When conditions are just right for a clover flow, a deficiency in lime will not necessarily prevent a yield of nectar; but when they are from poor to fair, a lack of lime means a total failure of clover honey.

Now, then, if the right amount of lime is put on poor soils at the right time, and in the proper way, they may yield clover nectar even under poor or fair conditions. Do we make the matter clear? In any event, do not get the notion *all* soils everywhere need lime. But there is a tendency toward a lime deficiency everywhere; and in many localities the lime has gone out so much that the land has become clover-sick. There is, in fact, no "sickness" about it, but a want of one element—lime. Clover, like animals, must have a balanced ration. Chickens, for example, must have green food and grain in order to lay in the spring. They must, in fact, have a variety. This item by Mr. Crane was written for Siftings; but as it required a more elaborate answer than could be made in that department we have placed it in the editorial columns.

LESS FRUIT ON ACCOUNT OF LACK OF PROPER POLLINATION OF THE BLOSSOMS.

The severe losses that took place last winter will probably mean a considerable reduction in the amount of fruit produced, by reason of the fact that there will not be enough bees to pollinate the fruit blossoms properly in many localities. The fruit-growers are feeling this very keenly, and are making strenuous efforts to get bees from somewhere.

A large number have asked where they can get bees to make up for winter losses. Only a few have responded saying that they had bees for sale. Among the former is W. J. Manley, of Sandusky, Mich., one of the most extensive honey-producers in this country. Parties who have agreed to furnish him a carload of bees are now unable to do so, owing to the severe winter losses. You will find elsewhere that he has in the Wants and Exchange department an advertisement for bees. Albert J. Hann, of Pittstown, N. J., is another party who would like to get in touch with some one who has bees for sale.

We have a carload of bees on the way from Florida, that we expect before this journal goes to press. We shall probably send out an order for another carload. We have been hunting right and left for bees in the North, but have secured only a few scattered lots. Practically every one who has any bees is mighty glad of what he has.

David Keene, of Blackbird, Del., has twelve of fifteen colonies of hybrids in eight-frame hives that he will sell at \$3.00 at his postoffice. If any one has any bees for sale now is the time to advertise them.

THE NEW POSTAL RULING CONCERNING THE MAILING OF QUEEN BEES.

On March 23 the Postoffice Department amended paragraph 7, section 496, general order 6158, to read as follows:

"Queen bees and their attendant bees, when accompanied by a certificate from a State or Government inspector that they have been inspected and found free of dis-

ease," may be transmitted in the mails. The literal enforcement of this order would make it almost impossible to ship any queen bees, practically ruining the queen business, and causing a serious handicap to bee culture in general. When we received notice of this amended order from the Postmaster-General we had on hand something like a hundred queens ready to go out. While our apiaries had been inspected by our State foul-brood inspector last year, and found free of disease, yet this particular lot of queen bees and their attendants, which we were proposing to send out, had not been inspected. Obviously it would be impracticable for any State or Government inspector to see every queen bee and her attendants before they were sent out; and, besides, no examination of the queen bees and their attendants would show the presence of any contagious disease such as American or European foul brood in the hive from which they came. An examination of the brood is what determines the condition in this respect. The order, therefore, was clearly unworkable. Evidently some blunder had been made. We immediately took the matter up with Dr. E. F. Phillips, of the Bureau of Entomology, and our manager, Mr. Selser, of our Philadelphia office. The result was, a letter from the Department of Agriculture, signed by Secretary Wilson, was sent over to the Postoffice Department, recommending a further amendment reading as follows:

Queen bees and their attendant bees when accompanied by a copy of a certificate of the current year from a State or Government apiary inspector, to the effect that the apiary from which said queen bees are shipped is free from disease, or by a copy of a statement by the beekeeper made before a notary public or other officer having a seal that the honey used in making the candy used in the queen-mailing cage has been diluted, and boiled in a closed vessel.

This was accepted by the Postoffice Department, and duly signed by Postmaster-General Hitchcock, May 3. It will be observed that this amended form is workable, and at the same time still makes it possible for a queen-breeder who can not secure the services of a State or Government inspector to send out queen bees, providing he makes oath to the effect that the honey he uses in the candy has been properly diluted, and boiled in a closed vessel. The order of March 23 practically prohibited the mailing of any queen bees, and had it not been for the latter half of the newly amended paragraph 7, queen-breeders so situated that they could not secure the services of a State or Government inspector would be compelled to go out of business. The new order, of May 3, is a step in advance. It will not handicap queen-breeders nor beekeeping in general as did the order of March 23. It will prevent the spread of bee diseases through honey from infected hives that might be used in making the queen-cage candy.

When we prepared the editorial that was published on page 222, advising all queen-breeders to boil all the honey they use in

making queen-cage candy, we were not aware of any new ruling contemplated by the Postoffice Department. While most of the principal queen-breeders subscribed to our recommendation, there were some who did not. These latter have since sent in their names agreeing to boil the honey. In the mean time the recent order of the Postoffice Department makes it obligatory on all breeders—at least so far as it relates to queen bees sent through the mails.

As it is not practical to send single queens by express, we anticipate that the new ruling of the Postoffice Department is going to prove of great value to the industry of beekeeping in the United States. The Bureau of Entomology, and particularly Dr. E. F. Phillips, is to be commended for its promptness in securing a recommendation signed by Secretary Wilson for a workable ruling. Had the amended ruling not followed as soon as it did, thousands of queens would have been lost, and a great damage would have been done to the industry at large. All is well that ends well, only in this case we are better off than we were.

THE AMERICAN BEE JOURNAL AND THE BEE-KEEPERS' REVIEW CHANGE HANDS.

ABOUT a month ago we were informed that the *American Bee Journal*, owned by Geo. W. York since 1886, had been sold to C. P. Dadant & Sons, of Hamilton, Ill. That journal will be published hereafter at Hamilton, and all remittances and communications to the paper should be sent to the Dadants as above. Further announcements, doubtless, will be made in the *American Bee Journal*. We understand that Mr. York has gone into other business, and that Mr. C. P. Dadant, who has been a frequent contributor to "the Old Reliable," will be the new editor.

Mr. Dadant is one of the best-known beekeepers in the world. His crops of honey have gone up into the thousands of pounds. At one time the Dadants owned and operated some seven or eight out-apiaries. Both the senior, the late Charles Dadant, and in later years his son, C. P. Dadant, have been recognized as authorities on bees, not only in America, but particularly in Europe. Indeed, the Dadant system of management and the Dadant hive are used very largely by the most progressive beekeepers of Europe. Mr. C. P. Dadant, therefore, comes into the editorial field as one peculiarly well equipped for the work. The Dadants have always been recognized as thoroughly conscientious in all their dealings, and it is not necessary to say they have been successful in their business. Any one who knows any thing about the Dadants knows that their product, comb foundation, has always been of the very highest grade. For many years they have advertised, and stood by their guarantee, that every inch of their foundation is equal to the samples they send out, and the best they can make. It is, therefore, with peculiar pleasure that GLEANINGS

extends the right hand of fellowship to the new proprietors of the *American Bee Journal*.

Some months ago we announced that Mr. E. B. Tyrrell, of Detroit, Secretary of the National Beekeepers' Association, had acquired the *Bee-keepers' Review* from the wife of its former editor and proprietor, Mr. W. Z. Hutchinson. Mr. Tyrrell took hold of the paper with zeal and enthusiasm. He has done what many another man could not have done with ten times his experience; and that is, he has maintained the old subscription list of the *Bee-keepers' Review*, which everybody said would die a natural death when its old editor and founder passed away from the scenes of this earth. As we have before said in these columns, Mr. Hutchinson was a most remarkable man. He was one of the best editorial bee writers this country has ever known. He had an attractive, clear, and concise style. His personality was unique. When such a man died, naturally every one supposed that no one could be found to take his place.

But it appears that in his capacity as editor of the *Bee-keepers' Review* and Secretary of the National Beekeepers' Association Mr. Tyrrell has really been compelled to do many things double, simply because they applied to different kinds of business. Then came the question of separating the office work of the National from his own private work on the *Review*. Then there was another factor to be considered, and that was, there was a demand for an official organ that could represent the organized bodies of beekeepers located in the various States. To make a long story short, it was finally decided to sell the *Review* to the National. Announcements are now out stating that the actual transfer has taken place, and the *Review* is now the property of the National, to be edited by its present Secretary, Mr. Tyrrell. Just how far the policies of the *Review* will be changed, of course remains to be seen.

In Europe there are several beekeepers' societies that have their own official organs, and naturally enough the question arises, "Why should not the beekeepers of this country, in their organized capacity, have an organ of their own?" The question has been answered now, and what its success will be is yet to be determined. Of course, it means that the National will be responsible for its finances, and it may be that its directors will have to dig down into their pockets to tide it over some tight places. There seems to be entire harmony of action on the part of the directors toward Mr. Tyrrell, the Secretary, and we see no reason why, with good management and co-operation, the new deal should not be successful.

Mr. Tyrrell is a young man of sterling qualities. The merry twinkle of his eyes will win friends toward the new project everywhere. It is a pleasure to know him. If any one can put an official organ on a paying basis he can. Success to you, Bro. Tyrrell, and your directors.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

JUST BEEN OUT looking at the white clover, April 29. Looks rather scarce.

AS A SOIL-IMPROVER, sweet clover is not half appreciated. At the Ohio Experiment Station sweet clover land yielded 45 per cent more corn than similar land not in sweet clover the previous year.

THE SUGARED HONEY in your brood-combs will be wasted by the bees, W. P. F. Spray them with water, preferably hot; and as often as the bees lick them dry, spray again. [Right you are, doctor.—ED.]

IF NECTAR CONTAIN 75 per cent or more of water, and honey contains 25 per cent or less of water, then for every pound of honey stored, two pounds or more of water must be gotten rid of. [This is about right.—ED.]

"TO PAINT hives is not advisable, because painted hives favor dampness inside. At the most, paint only the front." That's an answer in the question-box of *Bienen-Vater*, p. 350. Doolittle and I would feel quite at home over there.

"SWEET CLOVER" is the title of a new government bulletin. It's fine. Also it's free. Send to your congressman or to the Secretary of Agriculture, Washington, D. C., for Farmers' Bulletin 485. Get your farmer neighbor to send for it.

J. SUPER REPORTS, *Schweiz. Bztg.*, p. 47, that he had a colony with many bee-lice. In the evening he shoved a piece of camphor under the bottom-bars upon a paste-board. Next morning he drew out the paste-board and found upon it about 200 dead lice, with no harm to queen or bees.

THE DISCUSSION as to bees throwing out excess of water while on the wing has been taken up in European journals. There is a general agreement with the views of Messrs. Root and Hand. Only a very few think the water is, perhaps, thrown out by the mouth. [We are glad to know that our views have been confirmed. European writers on bees are usually careful observers.—ED.]

HOW MANY FIELD BEES in an average colony? Pf. Burghardt, *Leipz. Bztg.*, 24, says 13,300. Coel. Schachinger, same journal, p. 47, says 8000. It's of some consequence to have the matter settled. Who will help settle it? And, by the way, what is an average colony? [We should say the answer to this question depends on the locality, the kind of hive, and the methods used. A hundred different beekeepers, variously situated, might, therefore, give a hundred different answers.—ED.]

IS THERE NOT some mistake about Father Langstroth living at Hamilton, O., as mentioned p. 232? In 1858 he moved to Oxford,

O., where he did, for that time, an immense business in Italian queens. From there he moved to Dayton in 1887, where he died Oct. 6, 1895, falling dead in the pulpit after preaching a sermon. One of the things I have to be proud of is that in 1873 he made a call on me while I was living in Cincinnati. [We know that he lived at the places you mentioned, and he probably lived at Hamilton. Who can tell us?—ED.]

HERR BOHN, editor *Maerkischen Bztg.*, has for years followed the Swiss method of queen-rearing, and sounds a warning against it. It involves the American plan of starting cells, which he thinks sufficiently against nature to result in deterioration in the course of time. Any way, my plan of letting the bees start cells on their own combs is not open to this possible objection, and I can raise just as good queens, even if I can not raise so many thousands—*Bienen-Vater*, 322. [A great deal depends on who starts the cells. There is a right way and a wrong one. Some beekeepers can never make a success of any plan. A few do.—ED.]

PASTOR FLEISCHMANN, *Ill. Monatsblätter*, 15, quotes the editor of *GLEANINGS* as estimating the annual consumption of a colony at 200 to 250 lbs., and says "neither estimate suits our conditions. With 30 lbs. of winter stores a colony comes through very well till the next harvest; and so large a consumption in summer is incredible, and colonies on scales show that it is impossible." I'll swear by the editor of *GLEANINGS*; but it might be a good idea to have some figures to settle the question. [We wonder if Pastor Fleischmann is taking into account the immense amount of stores it takes to rear brood. While 30 lbs. of winter stores will carry a colony through till the following harvest, yet, if it could not gather any more stores from the time bees are able to fly until the harvest, it would use up its 30 lbs. in short order if brood-rearing were started, long ere the beginning of the honey-flow. It would seem to us that Pastor Fleischmann is not taking into account the fact that in most localities, and probably in his own, bees in the spring and early summer are constantly gathering some stores—nearly enough to keep up brood-rearing, so that the 30 lbs. given in the fall will supplement the amount that they gather from week to week to carry them through till the harvest is on. Our estimate of 200 to 250 lbs. took into account not only the amount the bees had in the fall to go into winter quarters with, but the amount that they gather during the following spring and summer that is absorbed in brood-rearing. These estimates have been confirmed by a number of beekeepers on this side of the great water.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The Department of Agriculture at Washington has issued a bulletin on sweet clover. Let us see that it is well distributed among the farmers of the country.

I was not aware that the annual loss is as large in California as Mr. Chadwick states on page 101, Feb. 15. More and more I am led to believe that all the good things are not in one place.

If beginners in beekeeping who intend to do much business will cut out the editor's footnote on page 98, Feb. 15, and paste it up where they can always see it, and follow its advice in marketing honey, it will prove a perennial source of profit.

Those illustrations of J. B. Case's nucleus frame and top-bar, page 117, Feb. 15, are true to the real thing, and the best I have ever seen for their purpose. Mr. Case is a modest man, but is doing some good work along the line of queen-rearing.

That is what I call a capital idea, giving a whole number of GLEANINGS to bees and fruit, or largely so, as is done in the number for March 15, and then on top of that an offer to send free a copy to those fruit-growers whose names beekeepers may send to the office.

In talking with Mr. Geo. Demuth, of the Department of Agriculture, Washington, he said that the weather reports of the Weather Bureau might be of considerable value in fortelling the weather to those taking bees out of winter quarters in the cellar. This is both a new and a good idea.

I believe friend Byer is right, page 70, Feb. 1, in advising the use of a wax-press. If one has much wax to extract, it will soon pay for itself, although Mr. Poppleton, of Florida, with whom I have been stopping for some time, renders all his wax by means of the sun's rays. But the sun is about as hot here in January as in the North in July.

From conversations that I have held recently with Dr. Phillips and Editors Root and Tyrrell, it seems certain that not more than one bee-keeper in six or eight takes a bee journal of any kind. If we are to fight bee diseases successfully, shall we not make a strenuous campaign against the appalling ignorance of the beekeepers of the land as a strong force in controlling foul brood by increasing the circulation of such publications as are devoted to beekeeping.

Dr. Miller quotes, page 36, from *Deutsche Imker*, the remarkable fact that "a mixture of two honeys is darker than either kind separate." Funny! We have for years been mixing light honey with dark to improve the color of the dark honey, and thought it did. It must be that we are color-blind not to have seen that it made matters worse.

I was with Mr. O. O. Poppleton when he read that item on page 99, Feb. 15, regarding windbreaks. He thinks that, instead of a single item, the subject is of sufficient importance for a full article; for in wintering bees in the North, shelter from winds is of the utmost importance. We all know how much more we suffer from cold when working or riding in the wind than in a quiet atmosphere.

Dr. Miller, page 69, Feb. 1, says that he doesn't know why moths prefer old dark brood-combs rather than clean combs in sections. Let me suggest that most insects that lay eggs seem to know instinctively the food best adapted for nourishing their young, and doubtless the moths that lay eggs know that old dark brood combs containing more or less nitrogenous matter are far better food for their young than white section combs, for the larvæ of moths can no more be reared without nitrogenous food than the larvæ of bees.

Mr. Wm. T. Fritz, of Canastota, N. Y., writes to know if the Davis hive is like the Manum. I may say it is not, and that neither of them has any special point of interest for bee-keepers at the present time. He also desires to know if sections should be graded so as to make all in a case weigh the same. To this I would say it is not our custom to do so, for then some cases of heavy sections would weigh 25 or 26 pounds to 24 sections, while other cases would not weigh over 21 or 22 lbs. per case. Better make the cases average 23 pounds if possible.

A little boy wrote a composition on pins. He said that they are very useful. Girls use them to pin up their clothes, and they save a great many lives. The teacher inquired how they saved so many lives. His reply was, "By not swallowing them." Stopping for some time in a section of Florida where a large number of rattlesnakes have been killed, and where several persons have died as a result of being poisoned by rattlesnakes, I inquired as to the value of whisky, that all my life I had heard praised as a sure antidote for snake poison. I was told that its value for this purpose consisted in not swallowing it.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

A GOOD HIVE-NUMBER WANTED.

Hive-numbers are good things, especially if more than one person looks after the bees. It often happens that something has to be done to a certain colony on the next trip to the apiary; and while the person there before knows the location of that particular hive, it is not an easy matter to tell to a certainty to others just which one it is unless they also are well acquainted with the location of all the hives. But how easy it is to say "No. 34," or any other, for that matter! and how easy it is to find that number on a hive, although we may never have been there before!

But here is a question: What are such numbers really worth? and what ought a good, durable, substantial hive number that can be put in place in a jiffy, changed from one hive to another in the same length of time, and one that will last a lifetime, cost? At the present time there is no suitable hive number on the market, that we know of; and if there were one, how much could the bee-keeper afford to pay for it? We have been thinking about numbering all our hives with a good hive-number; and as there are a thousand or more hives to number, the question above naturally crops out. Will some of those who know, therefore, tell us all about it? It will be highly appreciated at this time.



THE TEXAS OUTLOOK.

Not for many years have the prospects for a good crop been brighter than this spring. Although the winter was the longest and the most unfavorable for perhaps twenty years, according to many authorities who have kept bees and have watched the weather from year to year, the outlook is better than was really expected by many of us. There has been an abundance of rain since last fall, in most localities. As a consequence all kinds of vegetation are in great profusion and of luxuriant growth. This is indicative of a great mass of bloom yielding honey much more abundantly than even under average conditions. Judging from this, then, other conditions being favorable, the honey crop will turn out to be one of the best we have had for several years.

The bees, as a rule, are in good condition in spite of the long-drawn-out winter. While the unfavorable weather conditions were, perhaps, not felt so much in Southwestern Texas, reports from our correspondents are to the effect that the bees suffered considerably in the northern localities of the State. There were very few days favorable enough so that bees could work on the bloom that did make an early appearance; and many of the otherwise early flowers were delayed materially on account of the continued cool wet weather. In some apiaries this was so marked that the bees, which were rearing

brood at a rapid rate, and consuming their stores, had to be fed to prevent starvation. This was a critical condition in beekeeping, since the shortness of the stores at this time has a detrimental effect upon the progress of the colonies, in that much brood is subjected to starvation, and destruction by the bees themselves. Bees short of stores will devour not only large numbers of eggs but young larvae at this stage of discouragement before the beekeeper may discover the actual serious condition prevailing. It is, therefore, of the utmost importance to watch all colonies closely and to supply necessary stores *before* such harm is done instead of waiting until the bees are found actually in a starving condition. To wait so long will require a longer time to become populous for the honey-flows, if, indeed, the colonies regain enough strength to gather surplus honey. The beekeeper who knew how to take care of such conditions properly and promptly is being repaid abundantly for his timely precautions.

Thus we find that the bees are in good or bad condition in various localities according to the ability of their owners to take proper care of them. The shiftless beekeepers with their "gums" are, as a rule, the heaviest losers. It is they who assert positively that the "worms" have killed their bees, when in reality they starved out before the wax-moth larvae got into the beeless combs. The beekeeper here who prepares his colonies in the fall with more honey than they may need for winter will find little opportunity to worry about the bees wintering safely. If it is borne in mind that the bees really need more honey to spring them than to winter them, enough honey will be left to last well into spring. The honey not actually needed will not be lost, but, on the contrary, will result in rousing colonies of bees for the honey flows. This means a larger return in surplus honey—that which makes beekeeping a profitable business. The past winter has aided in teaching this lesson more thoroughly, and it is hoped that it will be heeded in the future.

Nine Virgin Queens Captured from a Colony Caught in the Act of Swarming

One sunny morning I was attracted by the piping of a queen in one of my hives. I went to investigate; and just as soon as I came up it began to swarm. It was a colony that had come from a swarm in the spring. I was surprised to find three young queens with it. I then went through the hive and found the original queen and four more queens hatched, and two more tore the caps off and ran out, so that made nine queens out. I caged them all and put the swarm back, and the colony stopped working. So I let one queen go, and the colony set it again. The colony is now in fine condition. It produced 96 lbs. of honey of good quality last season. You may be sure I made good use of the queens. They are the best I have. Two are ahead of any others in the whole yard.

ALLEN A. STRATFORD.

Kainga Tui, Orinoco, New Zealand.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

All beekeepers in San Bernardino County who will assist in organizing a county club will kindly communicate with me at once.

Thousands of colonies were moved to the orange districts during the dry-weather scare. Nearly all of these will be returned to the sage-fields if they should give promise later of a fair yield.

Orange County is said to have the strongest county club in the State. Ninety-five per cent of the crop of the county is produced by those represented in the membership, which is organized into a splendid working body.

Our county bee inspector, Mr. Herron, openly defies the beekeepers to cause his removal from office. Those who think our foul-brood laws are adequate may have the job. I prefer to use my energy in getting a law that will leave the matter in the hands of beekeepers. *He will go then.*

While passing a white-clover lawn a few days ago I noticed about forty bees industriously working on the bloom. Within a short distance were quantities of orange blossoms fairly dripping with nectar. I offer no explanation, other than to suggest that the bees were "tender feet," just from the East, that didn't know a good thing when they saw it.

WARMER WEATHER NEAR THE COAST MAKES UP FOR THE FOGS.

This morning (April 24) there was a heavy fog-bank visible toward the coast, ten or twelve miles away. This condition is much more prevalent nearer the coast than here in the inland sections, giving us the advantage during the orange flow. This advantage, however, is largely offset by the warmer weather and more even climate under the influence of the ocean, nearer the coast, encouraging earlier breeding, which results in stronger colonies to work on the orange, whenever the weather is suitable.

HATCHING BROOD CAN STAND A LOW TEMPERATURE.

In spreading brood my observation is that it is wise to put sealed combs (hatching preferred) on the outer sides of the brood-nest; for if cold weather should drive them in dangerously close, the sealed brood will stand a lower temperature without injury than young larvae. This was very forcibly impressed on my mind last season when, three days after having transferred a colony, I noticed bees hatching from scraps of brood-combs after having been exposed to a temperature ranging as low as 40 degrees. The loss would be greater if the sealed brood

should perish than if only eggs or larvae; but if there should be danger of that, it would be better not to spread. Spreading is really never safe until one's bees can cover more combs than they have brood.

ORANGE BLOOM WITH SNOW ONLY THREE MILES DISTANT.

On April 12 my bees, three miles back in the foothills, and at an elevation of several hundred feet, were snowed under for a few hours; while in the valley below, oranges were blooming, waiting for the visits of the bees. Such a contrast is rarely equaled in this country. The entire week was very cold; the quantity of stores consumed was alarming; many colonies having an ample supply under ordinary conditions almost reached the starving-point by the end of the week following the storm, as the weather that week was so cloudy that the bees could take very few flights.

AVERAGE YIELD IN CALIFORNIA.

Wesley Foster's estimate, in *American Bee Journal*, of 50 pounds, extracted, per colony, as quoted by Dr. Miller, p. 223, Apr. 15, as being an average for specialists would not apply in California. I think 100 pounds would be a conservative estimate, taking into consideration that some years, outside of the orange and alfalfa districts there is practically a total failure. The average yield per colony, for Orange County, California, in 1884, was 700 lbs. per colony; in 1905 the yield for Southern California was 300 pounds average. These, to be sure, were exceptionally heavy-yielding seasons, but would figure largely in the average.

SAGE FLOW DOUBTFUL.

The rain question is no longer an unsettled factor in reckoning conditions on which the honey crop of 1912 will depend.

A local weather observer reports the storm from April 7 to 15 as being the heaviest for April in 28 years, nearly 4 inches having fallen during that period. This, added to what had previously fallen since March 1, makes 9 inches of late rain. The ground is thoroughly soaked to a good depth. At this writing (April 30) the sage seems still uncertain as to yielding; and after making close observations I can see no great hope of more than a light flow. There will surely not be any great profusion of bloom, for the growth does not indicate such. I may be wrong; but it seems to me that the late rains are forcing it out of its season. The result, I venture, will be little more successful than forcing certain other plants out of season. That there will be some bloom is quite certain; but many of the older bushes will bloom very little, if any; and whatever the yield may be, it will come late.

Conversations with Doolittle

At Borodino, New York

HOW TO ARRANGE SUPERS ON HIVES.

Among my many other books on bee culture I have "A Year's Work in an Out-apiary." I note that you advocate putting on two empty supers at the same time. I never tried that plan. What I want to ask you is this: How would it work to put the sections filled or partly filled with comb for baits in the top super, and none below? Would that not cause the bees to fill the top super first, and thus prevent all travel stain on the lower sections? I know by experience that it pays well to have one bait section in every row of sections.

In order to answer these questions I must "ramble about" to a certain extent. At the outset I wish to say that "A Year's Work in an Out-apiary" was written from an *out-apiary* standpoint. In the home apiary I rarely put two supers on any colony at the same time, unless that colony is a *very strong* one. The reason for this is that I am always on hand to attend to the wants of the bees in the home apiary; and if I had five out-apiaries and the home yard this home yard could have some of my attention at morning and night of the days spent in the out-apiaries, in addition to the whole of the sixth day spent at home. A quarter of a century or more ago we were firm in the conviction that no more super room should be given at one time than the bees could occupy at once. From this conviction, one, two, three, or four of the six boxes holding from six to seven pounds each, that the super of the Langstroth hive accommodated, were put on at first, little doors in the honey-board over the brood-chamber being fixed to close the entrances for each box when these were not on the hive. On scores of hives I put on only one of these seven-pound boxes at the start of the season; when, if this was occupied with bees, one more was added a day or two later, and a little later another, until all six were on. Now, any one will see at a glance that no out-apiary could be worked along this line.

It will also be seen how apiculture has progressed during the time since Mr. Langstroth first put his hive before the apicultural world. No "sections" were known at that time; and the term "baits," when first used with sections, had to be explained to the average beekeeper. With the arrival of sections came opposition, on the ground that a whole super must be put on at once; and to overcome this objection, Mr. Manum, of Vermont, a leading beekeeper of those days, clamped a single row of sections in a very light frame, so that in this way this principle of only a small amount of room at a time could be used with sections the same as had been done with the boxes. These light frames of sections could be put on one at a time till the top of the hive was covered and thus a "bridge" was made that finally spanned the chasm between the one-box-at-a-time theory and the putting on of a whole super of sections covering the whole top of the hive as we do to-day. After a while it was discovered that, by putting in

bait sections, one in each row, such as our questioner mentions, the bees could be coaxed into this whole super sooner than they would occupy one of the light frames, as made by Mr. Manum, without a bait.

The next step was to "stretch" the bees out still further; and so as soon as they were well at work in this first super it was raised, and an empty super of sections put under it. This caused the bees to commence work immediately in this empty super, so that they might not have an empty space between the brood below and their treasure house above. This became known as the "tiering-up plan." But many of us soon found that, unless the season proved to be an extra good one, or one long drawn out, we had from one-half to three-fourths of the sections worked in, unfinished at the end of the season, with only a small portion of our crop in marketable shape; while if we had not tiered up, our marketable product would have been twice as large. From this came the idea of putting the super of empty sections on top of the one the bees were at work in, and then, if more room was needed, the bees would "overflow" into this upper super, and work would go on equally well without danger of three-fourths of the sections being left in an unfinished state. There was also no danger of the "dish being bottom side up" if there should be an unexpected "rain of porridge." The objection to this empty upper super on top was that it allowed the heat of the colony, and especially of that from the bees at work in the first super, to pass up into this empty one above; and from this loss in temperature the bees could not work in the super next to the brood-chamber to as good advantage. But the observing ones found that the "crust bees" were able to keep the heat in the first super, when needed, by clustering in the beeways between the tops of the sections, so as to keep the heat just where they wanted it, so that the temperature of this empty super at the top was very little if any warmer than that of the outside air.

Turning to the main question of this correspondent, if one is at work at the out-apiary, and has a colony so strong that he thinks one super will not be sufficient until he comes again, the two are put on as given in the book. But I hear him asking, "Why not, as I suggest, put the super with the baits at the top?" Because the condition would then be almost if not quite the same as in the tiering-up plan. In other words, these baits would be so far away that they would not draw the bees into the supers at all; or if they did, the bees would commence in both supers at once, so as to have a connection between the bait combs above and the brood combs below, which would materially lessen the prospects for many marketable sections, especially if the season should prove to be a short or poor one.

General Correspondence

HONEY PRODUCED IN DISEASED APIARIES

Breeding from Queens whose Bees are Practically Immune

BY OREL L. HERSHISER

Brood diseases are rampant in many wide areas, and are, in each succeeding season, breaking out in localities heretofore free from disease. The annual increase seems to be in almost geometric ratio. That these diseases will soon overtake every apiarist in the country seems evident from authorized reports, notwithstanding all that official and private inspection and treatment has been able to accomplish in the way of staying their progress. Complete eradication of brood diseases, the country over, seems to be out of the question, and we may as well, and better, turn our attention to what is far more practical and profitable—namely, to becoming disease experts. That is what we must do if we are to continue in the honey-producing business as an occupation.

Much honey has been produced in recent years, in apiaries more or less affected by brood diseases. The percentage of such honey bids fair to increase annually for some indefinite time to come. This, at first thought, is not a pleasing condition to contemplate; but being confronted by that fact, the question for us to consider is, "With brood diseases present in the apiary can we profitably produce a crop of wholesome honey?"

We have been assured, by those qualified to advise, that the germs of brood diseases are in no way injurious to the human being. This is a most important fact. So important is it that, if the reverse were true, beekeeping as an occupation would speedily cease to be. So important is it, therefore, that this one item of knowledge may truly be said to be the cornerstone of the foundation upon which apiculture rests.

In the spring of 1909 European brood disease appeared in one of my apiaries. I could not believe it at first. Spraying of shade trees in Buffalo, within reach of the bees, had been in progress, and poisoning seemed to me a proper explanation for the presence of many dead larvæ in many colonies. However, when the summer was nearly over, an authoritative statement from Dr. Phillips, Washington Government Expert, convinced me that my apiary had been overtaken by the disease. It was too late to treat the bees that year. The disease had obtained a season's start. My first impulse was to destroy the apiary, root and branch. A request to our State agricultural department brought to my aid Messrs. Stevens and Stewart, two of our highly efficient State bee-inspectors. They gave me hope, and better counsel prevented the destruction of the apiary. Four colonies were given the

fall treatment by shaking upon combs of honey brought from another apiary that was not diseased. Fifty-eight colonies in this apiary were packed for winter that fall, several of which were the result of uniting weak diseased colonies. Fifty-four colonies were alive in the spring following, eight of which were weak. The first examination showed all but about half a dozen more or less diseased; and it was thought advisable to treat all that showed it. In my anxiety to get the disease under control as speedily as possible I was a little premature in treating the first eight colonies, which were the weaker ones, and lost four of them, leaving fifty colonies, spring count.

A plan of treatment embodying well-known principles, but varying from set rules in matters of detail, was thought to be sufficient, and, accordingly, all diseased colonies were treated. This included all but about half a dozen colonies of a fixed strain of Italian bees that has never shown the slightest trace of the disease. It may be remarked that, in my experience, confirming the statements of numerous experts in brood diseases, blacks, hybrids, and some strains of otherwise good Italian bees are particularly and possibly peculiarly susceptible to European brood disease, and are apparently predisposed to it. On the other hand, certain strains of Italian bees seem to be almost if not quite immune to it. Be this question of complete immunity of certain strains of Italians as it may, it is my personal experience that five or six colonies of Italians in this apiary never took the disease, which, for all practical requirements in apiculture, constitutes immunity. These Italian colonies were among the strongest and most vigorous in the apiary, and would certainly have carried the disease from the same source as those that were stricken. Other black and hybrid colonies that were equally strong and apparently as vigorous were badly diseased, and only prompt treatment saved them.

A part of the treatment decided upon was the selection of the queen of one of the Italian colonies that had not and did not become affected as the breeder of queens for requeening, and the substituting of queens thus bred for the queens of all colonies that showed the disease.

Being a novice in brood-disease treatment, and having a badly diseased apiary to operate, my crop of honey from it for the season of 1910 was only about 1000 sections and 800 pounds of extracted honey, and an increase to 60 colonies. In the fall not a trace of the disease was to be seen.

The spring of 1911 showed four of the sixty colonies of the fall before dead, and more than the average number of weak ones. Under the influence of settled warm weather they rapidly built up, and to all outward appearance were as healthy as any bees.

During the summer not more than six colonies showed any signs of disease. These were carefully treated, and later in the summer a careful examination showed only one colony diseased, which was a fine Italian, the queen of which I had purchased and introduced in July to a healthy nucleus, which showed that not all Italian bees are resistant to European brood disease.

This apiary was now short of brood combs, for many of them had been melted up the previous season in the process of treating the disease. Wishing to increase the number of these colonies, and to rear queens for my other yards, this apiary, during the season of 1911, was run for comb honey, queen-rearing, and increase. A carefully selected queen was used as a breeder (immunity to disease and good wintering being the main points considered). From this queen as a breeder every colony except eight was supplied with a young queen, the best of those substituted being used in other apiaries. The result of the season's work with this apiary was increase to 107 colonies, the rearing of a goodly number of queens for this and my other apiaries, and the production of 2500 sections of honey, some colonies finishing as high as six 32-section supers, or 192 sections. Only the stronger colonies were run for honey; the weaker ones were used for increase and queen-rearing. Considering the very unfavorable season, the showing of honey was very satisfactory.

The practicability of producing honey in diseased apiaries has *got to be* a foregone conclusion. It is the only thing to do for a goodly number of apiarists. There is no assurance to an absolute certainty that an apiary is without germs of disease, after it has once been infected; but that the honey from such apiary is wholesome for human food seems to be undeniable. There is just one simple direction to be followed in the production of honey from diseased apiaries: Use the queen-excluder on all colonies run for surplus honey, and extract no honey from brood combs. As an adjunct to this direction, let it be stated that the expert apiarist will not long have about his apiaries the brood diseases in noticeable amount, and but one or two seasons will suffice to make them free from disease to all intents and purposes.

There is surely a bright and hopeful side to this question of brood diseases. Has it not been in existence in Europe since the time "when the memory of man runneth not to the contrary"? And are not Europeans about as well supplied with bees as ever? It is not likely that the diseases will be more malignant here than in other countries. The brief manner in which some European writers of the past have referred to it and its treatment impresses us with the idea that it was not considered so very formidable. At any rate it has lost its terrors for me, and I regard it as a blessing in disguise. For me it has resulted in bees that are vastly superior in wintering, in handling, and in honey-gathering qualities.

What at first appeared to be a calamity is turning out to be a money-maker. As a result of it, the apiculturist of the future will be a bee *expert* instead of a mere beekeeper. From these view points it may truly be said, "Blessed be European brood disease."

Kenmore, N. Y.

MORE ABOUT TOBACCO HONEY

BY J. K. GOODRICH

Mr. E. H. Shattuck's article, "The Tobacco Industry in the Connecticut Valley," p. 162, March 15, was of much interest to me—first, because of the thousands of acres grown in this section; and the constantly increasing acreage from year to year. All opposition to tobacco as used by the human race seems to be of no avail, for the use has increased steadily up to the present time, and is still on the increase. But I have wondered how honey made from nectar gathered and stored from tobacco bloom could be wholesome for food. Not until the last few years has the tobacco plant been allowed to flower while in cultivation, so that tobacco honey is of quite recent production. The tobacco plant may be of interest to all beekeepers as being a new source of nectar for honey.

My boyhood days were spent in this locality, and the honey made by my father's bees was a necessary part of my lunch, which was composed of bread and butter and honey.

If I have been rightly informed, in my younger days the first tobacco grown in the town of Granby was a small plot on my father's farm in 1850. One of his employees suggested to him the raising of tobacco more as an experiment than otherwise, and the permission was granted; and from that time to the present the industry has developed to thousands of acres in a comparatively small area of Hartford County alone. New Tariffville, a few miles from Granby, is now the metropolis of the tobacco culture and business; eighty-four acres in one field alone is under canvas, and this field only one of many of the same kind on their plantation to-day.

When on a visit at Granby last summer, Mr. Shattuck very kindly gave me a large sample of tobacco honey for comparison with the honey stored by my bees in the fall season at Waterbury and Middlebury. I found it equal to the fall product gathered in my locality. I might say in passing, that I think there is no danger whatever of contracting the tobacco habit by eating the honey as one would by smoking or chewing the weed.

This plant belongs to the nightshade family (*Solanaceae*), the members of which resemble each other very much—as the potato, tomato, and egg-plant, all of which have a nauseous, disagreeable odor. The honey is dark, with a brownish cast in color, and there is an absence of a rank strong odor, so that it tastes and compares favorably with

the buckwheat product. Mr. Shattuck informed me that no disagreeable results follow the free use of this honey as an article of food by the members of his family.

I wish to say, however, that I was very much inclined to be skeptical as to its being more of what might be called a medical product than a food, like the honey from Brazil, some of which can be used as a medicine only, owing to the poisonous source from which it is gathered. But in this I am happily disappointed, as no bad qualities peculiar to this plant seem to be in the honey when ripened by the bees and placed under favorable surroundings after being removed from the hive. It would seem that this locality in the Connecticut Valley and adjacent territory with its broad acres of tobacco bloom between the buckwheat flow and the fall flowers would be what the buckwheat fields are to the Alexander apiary in New York, where hundreds of colonies are kept in one locality alone, with remarkable success in securing a honey harvest.

Waterbury, Ct., March 29.

PUTTING THE SWARM ON THE OLD STAND WITH THE PARENT COLONY BESIDE IT

BY DR. C. C. MILLER

A Canadian correspondent writes that in 1910 he fell upon a plan of management by which he got from a black colony 400 pounds extracted clover honey. The season was so poor in 1911 that he could not further test the plan, and he wants to know whether I think it will work. He thus describes the plan, which he says is a variation of the put-up plan given in "Fifty Years among the Bees."

A colony in a regular eight-frame Langstroth hive had an extracting-super over a queen-excluder, and this colony swarmed. To the swarm, which we will call A, were given foundation-starters, and it was set in place of B, the mother colony. B was set beside A. The next day I put an excluder over A, on which I put a super of empty extracting-combs, and over this the super from B. When the young queen began to lay in B, I put B in place of A, put an excluder on B; on this excluder a super of empty extracting-combs, and above this the supers that had been on A. A was put on a new stand with its old black queen, which is five years old this year.

The first question that arises is one regarding the safety of the young queen when B is put in place of A, as she is a stranger to all the field bees that enter the hive. But being surrounded by a household of her own bees, she ought to be safe except in a time of scarcity, and she possibly might be safe then.

Instead of a variation of the put-up plan, you have a variation of the excellent plan of putting the swarm on the old stand, the mother colony beside it, and moving the latter to a new stand in a week or so. Your waiting till the young queen lays before moving the old colony to a new stand will, in a large number of cases, result in one or more afterswarms. You don't want that. I don't see what you gain by swapping

hives and brood when you make your last move. You certainly lose two weeks or more of hatching brood, for you take from your honey-hive hatching brood, giving in place of it brood that will not begin to hatch out for something like three weeks. In the long run you will probably do better to stick to the old plan.

This correspondent says further, that, when he gives a ripe cell to a queenless colony, the queen hatches out, but is lost on her wedding-trip; but if the bees rear a queen from the egg there is no such loss. I think it only happened so, and that in general he will find as many losses from wedding-flights in one way as in the other.

BEES MAY KEEP EGGS FROM HATCHING.

A colony swarmed, its young queen was lost, and three weeks from the time the prime swarm issued cells were started with eggs that I am sure were laid by the old queen. How long will fresh eggs keep? Editor Root says fresh eggs keep, if warm, only three days. Not in this locality; they hatch.

I don't know enough about the egg business to speak with authority, but I think there may be no unreconcilable conflict in the case. You say that eggs, if kept warm, will hatch in three days. Surely in the case you cite they were kept warm, and they didn't hatch inside of three weeks. You have good backing in saying they will keep long, for no less an authority than Dzierzon reports eggs being kept by the bees. If I remember correctly it was two or three weeks. But when Editor Root says they keep only three days there is not necessarily any contradiction, for the probability is that he is talking about keeping eggs out of the hive, away from the bees. That's the only way in which we are much concerned about keeping eggs.

Without knowing very much about it I think it quite possible that this is what may be found to be true: That, unlike hen's eggs, bees' eggs will not hatch by heat alone without the presence of bees; that bees have the ability to keep them without hatching for a time, and then hatch them afterward. I don't know whether that's true or not; but I do know that in the fall I find in the hive eggs and sealed brood, but no unsealed brood. The queen continues laying, but the bees stop hatching the eggs—or at least the eggs stop hatching.

Marango, Ill.

GETTING ALONG WITHOUT QUEEN-EXCLUDERS

The Shape of the Brood-nest

BY GEO. SHIBER

On page 715, Dec. 1, 1911, is an article from Mr. Doolittle, on the use of queen-excluders. It is not often that my practical experience is much different from his—in fact, I nearly always agree with what he says on bee management. But I want to take an emphatic exception to what he says on the use of excluders in producing extracted honey.

He says, "And this brood which would easily go into one hive was scattered all through the combs of the two." Now, my queens never lay that way. I never knew of a case. The following is what I can expect from a colony in early spring: As soon as the bees have as many as four combs with brood, the shape of that brood-nest will be in the form of a sphere; and with a good queen, and plenty of pollen and honey coming in, that ball of brood keeps increasing in size until it reaches the outside combs.

We then put on another story of empty combs, and the queen will soon occupy this second story. And this is the way a queen will start in the upper story: First she will lay in the bottom part of the combs in this second story—in several of the central combs. The circle of egg-laying will be maintained, so that the center upper comb will have eggs extend higher than the combs on either side. After a few days this circle of brood will be higher in the second story, but sloping down as it goes toward the outside combs, preserving the spherical shape. I have never seen an exception to this.

About this time clover begins to yield. Another story is added, if needed; but the queen will never go into that unless she is a very exceptional layer. Of course this body is placed on top of the second story that the queen is partly occupying. A queen rarely needs more room than the two lower stories supply. (If this new story were put between the two stories which constitute the brood-nest it would make a bad mess, as then the queen and colony would be thrown completely out of balance, and abnormal consequences would almost surely follow, which would be decidedly unsatisfactory.)

By placing the body containing the empty combs on top it forms the third story. The honey which is coming in at a fair rate is placed first at the top and side of the circle of brood. After this space is occupied the bees will reach up into the third story with honey.

Where do the bees put this first honey in the third story? Never in the upper part of the combs, but in the bottom part first, and then gradually extended upward. (An exception to this, and it also applies to brood, is that, if there is a black comb in the center of the third story, and the rest of the combs are white, never having had brood in them, the black comb will be filled first.)

At this stage the queen and workers will ease up on brood expansion, and contraction will take place. The circle will gradually work down out of the second story into the first; so by the time the harvest is past there will be only a small amount in the second-story combs, and the bees will have filled the cells with honey as the brood has receded.

In view of the above I can not see how a queen could have brood "scattered all through the combs of the two" stories. Normally, bees do not scatter their brood or honey. It is always in a compact shape. At no time between spring and the end of

the basswood flow have I ever known a queen to desert the lower stories to go into the third when it was added. Later they will go up into the second or third story, however, and that time is toward the last of the buckwheat harvest.

If Mr. Doolittle had been talking about the flow from buckwheat I should have agreed, for at this time nine out of ten two-story colonies will have the brood-nest in the top story. If they have no excluder between, I suppose it is because it's warmer, at a time when the nights are cool.

This whole question, however, may be one of location; but my bees, when they have the maximum brood-nest, have it extended to the entrance. I have a pile of excluders in the shop, but I have not used them for several years. I like the present way much better; but one must manage rightly if he wants the best results.

Randolph, N. Y.

SWEET CLOVER IN CENTRAL ALABAMA

BY A. B. BROWN

I am prompted to say a few words in behalf of melilotus, or sweet clover, in view, if possible, of correcting some of the wrong impressions in regard to the plant. I wish to speak of it only as it is looked upon by the planter, the cattleman, and the beekeeper in this part of Alabama, where it grows luxuriantly on the lime soil.

The planter has used sweet clover for years as a land-redeemer, and to keep land (not in cultivation) from washing. Land that is practically worn out, after being seeded to sweet clover for three years, will produce good cotton again. Then, too, when land is poor and washed full of small ditches and gullies, if sweet clover is sown it will hold firm the washing banks, catching the wash of the soil, thereby filling up numerous depressions.

In this section nothing but unhulled seed is used. It is cheaper, and easier to get. For the best results the land is plowed and about two to three pecks of unhulled seed to the acre, sown broadcast. It is not necessary to harrow it in. The rain will wash sufficient soil over the seed. Sometimes a brush is run over the soil for the purpose of covering the seed slightly.

It is a peculiar fact that cattle not raised in the sweet-clover districts do not care for it at first; but they soon learn to like it, and afterward prefer the sweet tender bunches to the other vegetation of the pasture.

The sweet-clover soil (lime soil) of the South is not very extensive, consisting of a narrow strip across Mississippi and Alabama, with some sandy land mixed in, which has no sweet clover. In this section we find that it is a land-builder; excellent to sow in order to keep the soil from washing; fine for the pasture, besides a very good honey-producer, which in its favor have made it a friend and a benefactor.

Hayneville, Ala.



Apiary of Geo. H. Kirkpatrick, Rapid City, Mich., showing method of arranging the hives in pairs. Each hive stands on four cedar stakes.

HOW THE LOCATION AFFECTS THE HONEY-FLOW

Points to be Considered in Laying Out an Apiary

BY GEORGE H. KIRKPATRICK

Much depends upon the location of a beeyard. In the spring of 1909 I had an apiary located on a high altitude, a stretch of country known in this section as the "snow ridge." The bees of this apiary had been removed from the cellar April 14, at which time they were in first-class condition, the clusters occupying seven to eight spaces in ten-frame hives. The nearest water was one mile distant. By June 10 the colonies were reduced by one-half, and I received no surplus. The bees were left for two seasons in this location, and were reduced to a worthless condition. The location was the principal cause of the failure.

Note the difference: At the same date in 1909 I had an apiary 20 miles north, located on a stretch of land lying between Grand Traverse Bay and Torch Lake. The soil is a heavy clay, wet and springy, and there is water in every horse-track in early spring. Soft maples and pussy willow are plentiful. The bees at this apiary had wintered poorly, being reduced to very small colonies while in the cellar. I carried them out April 16; but with a sheltered location, plenty of

water, pollen, and honey-producing plants near by, they bred up to good colonies and gave me a net average of 110 pounds per colony, spring count. The bees in the two apiaries had the same care, each receiving the same number of visits.

LOCATING THE APIARY.

In locating an apiary there are several points to be considered. First is the pasture. We must seek a location where there are hundreds of acres of honey-producing plants. In this locality we seek to find raspberry and milkweed, for on these two plants we depend for our surplus honey. Then for early pollen and nectar we must have maple, elm, pussy willow, dandelion, and fruit blossom.

THE ADVANTAGE OF SHELTER.

The best locations are usually found in valleys a mile or more in width, for such places are warmer in early spring than the higher lands. A spot of ground should be chosen in a sheltered nook; a clump of timber, a thicket of second-growth timber, or a ridge of hills on the north and west of the apiary will prove valuable.

The ground should be nearly level, but a gentle slope to the south or east is preferable.

THE HIVE-STANDS.

I make my hive-stands of cedar timber sawed into 16-inch lengths, and split into



Annual convention of the Southern Idaho and Eastern Oregon Beekeepers' Association held at Caldwell, Idaho, Feb. 9, 1912.

stakes about 2 inches square, which should be pointed at one end. Four hundred stakes are required for an apiary of 100 colonies. To arrange the hive-stands I go to one corner of the yard; drive two stakes 20 inches apart. I then drive two similar stakes at the further end of the yard, and stretch two lines between them, 20 inches apart. Then beginning at one end I drive four stakes, forming a level square 16×20 inches. I now move forward two feet and drive a second group of four stakes. The next space is six feet, so that the hives in the row will be in pairs. See illustration.

When I have reached the further end of the yard I take up the lines and arrange for the second row of stands, leaving a space of 12 feet between the rows.

SPRING PROTECTION AND SECURING WORKERS FOR THE HARVEST.

It is possible to have a good flow of honey and yet secure no surplus. The only protection I give my bees in spring is a quilt and tarred felt placed over the brood-frames and under the cover. Soon after the bees have a flight I look each individual colony over and note its condition. The small colonies are contracted to six combs by the use of division-boards. I make sure that all colonies have sufficient sealed stores to carry them safely through until May 1, when I get busy. At that time I make it my business to see all yards once each week. Just as soon as the brood-chamber becomes crowded with brood and bees I place over all such colonies a full-depth super filled with worker combs. The queen will soon

enter this super, and in a few days it will be filled with brood. When the bees are hatching freely in this super, which will be about May 25, I begin to build up the smaller colonies by drawing combs of hatching bees, and giving them to the small colonies. If it happens the small colony is so weak as not to have at least three combs of hatching bees I then exchange a comb of such bees with them for a comb of eggs. The eggs can be given to a medium-size colony.

It is my practice to have all colonies filling a two-story eight-frame hive with brood and bees by June 10, for at that date our harvest from raspberry begins. I now confine the queens to the lower body of the hive. To do this I remove the cover, give the colony a few puffs of smoke, thus driving the bees and queen below. I remove the super and place a queen-excluder over the hive-body. Over this I set a super filled with extracting-combs. I now look over the set of combs I smoked and removed; and if I find the queen I catch her and run her in at the entrance; then I put these combs on top of the extracting-combs. The colony is now three-story. Should the flow be a moderate one, the colony may not require any more supers; but if it should be fair to good, a third super will be required. Should more storage space be required I give it either by adding a third super or by extracting. If by extracting, I extract only capped honey. It looks nice to see hives tiered up with four or five supers of honey; but I think the bees store best when the hives are not more than four stories high.

Rapid City, Mich.

SOUTHERN IDAHO AND EASTERN OREGON CONVENTION

Shaking Foundation out of the Paper in which it is Packed

BY E. F. ATWATER

The annual convention of the Southern Idaho and Eastern Oregon Beekeepers' Association was held at Caldwell, Idaho, Feb. 9, 1912. There was a very good attendance of representative beekeepers, owning, in the aggregate, many thousands of colonies.

Perhaps nothing particularly new or valuable was brought out in the discussions, although the need of thoroughness in the eradication of foul brood was particularly emphasized.

The officers of the association for the year 1912 are shown in front of the group, seated. President, W. H. Pennington, the second from the right, is as practical a producer of extracted honey as any man in the northwest. Vice-president J. E. Lyon, long-time comb-honey expert of Longmont, Col., now of Idaho, is seated at the left (his daughter next to him), while at the right is R. D. Bradshaw, who is, perhaps, not behind the late E. W. Alexander in the successful operation of huge apiaries of 500 colonies and upward, in a single yard.

REMOVING PAPER FROM PACKED FOUNDATION.

One of the most tedious tasks that fall to the beekeeper is removing paper from foundation. Personally I have never seen any reason for the sheet of paper that goes with each sheet of foundation, unless it may, perhaps, serve to prevent breakage by imparting a certain cushion-like quality to the pile of foundation within the box. Certain-

ly I have shipped and received several hundreds of pounds of foundation not so papered, without loss.

But as the makers of the improved process foundation will paper it, a quick method of removing the paper is greatly to be desired, and such a method the writer originated several years ago, and has used since then with much satisfaction and saving in time. Perhaps the cuts and description will render it clear.

A pile of the double-papered sheets of surplus foundation is taken in both hands, as shown in Fig. 1, and shaken lightly, when the sheets in the lower part fall out. Now the lower part of the paper (now free from foundation) is seized and the remainder of the foundation shaken out as shown in Fig. 2. The foundation, free from paper, is now lying on the table, with the paper remaining in the hands, as shown in Fig. 3. The foundation must be cool, but not so cold as to break or crack easily. I see no reason why a similar method could not be used with brood foundation, if the makers would only make the paper about nine inches wide, so as to provide a place where it could be held while shaking out the foundation.

It is only fair to admit that I find some foundation that can not be freed from paper in this way—perhaps due to the fact that it has been packed so tightly in the box, or while too warm, so that the paper adheres tightly to the wax. Surplus foundation should never be papered by wrapping or folding each alternate sheet in paper, as has been done by some makers; for if packed by that plan, then there is no way to remove the paper except by the slow and tedious hand process, one sheet at a time.

Meridian, Idaho.



Wholesale method of removing paper from foundation.



MEMBERS IN ATTENDANCE AT THE CALIFORNIA STATE

Row 1, left to right. 1, Mrs. A. B. Shaffner; 2, Mrs. G. J. Lynn; 3, —; 4, —; 5, H. Perkins; 6, A. Seligman; 7, M. A. G. Burdick; 8, E. B. Shaffner; 9, W. H. Allen; 10, M. Andrews; 11, Frohlinger; 12, Emerson; 13, Corry; 14, Schrock; 15, Mrs. Andrews; 16, —; 17, —; 18, —; 19, —; 20, —; 21, —; 22, —; 23, —; 24, —; 25, —; 26, —; 27, —; 28, —; 29, —; 30, —; 31, Mrs. Martin. Row 3, 1, Bennett; 2, —; 3, Delos Woods; 4, Maxfield; 5, Hatch; 6, Mercer; 7, —; 8, Honey; 9, Larnie;



BEE-KEEPERS' CONVENTION, LOS ANGELES, FEB. 6-8.

—; 9, De Sellem; 10, Metcalf; 11, Mrs. Wiggins; 12, M. H. Mendleson; 13, J. W. Ferree, Pres.; 14, Ralph Benton; 15, —; 16, E. B. Shaffner; 17, —; 18, —; 19, —; 20, —; 21, —; 22, —; 23, —; 24, —; 25, —; 26, —; 27, Mrs. Crane; 28, Mrs. Shaffner; 29, Mrs. Blocker; 30, Mrs. Honey; 31, Brown; 32, Chadwick; 33, —; 34, Sweeney; 35, —; 36, Battey; 37, —.

WHY CERTAIN SWARMS DO NOT CLUSTER

The Story of "Giantess," of Forty-five Years Ago

BY A. I. ROOT

On page 284, May 1, is an article entitled "A Swarm that did Not Cluster." By some oversight a footnote was not added, to the effect that, when a colony of bees select a home before swarming, they seldom if ever stop to cluster on a limb in the orthodox way. My first experience in this line may be remembered by some of our oldest readers. After getting that \$20.00 queen of L. L. Langstroth I reared a large number from her the following season. One in particular was so very large, and had such an extremely prosperous colony, that I called her "Giantess" as a bit of pleasantry. Well, when white clover opened, my Italian bees were going in great droves off toward a piece of timber in the northeast. They not only made a great ado in the morning when they started, but there was such a roaring overhead that people thought my bees were swarming; and one morning I started out to find what called them off in that particular direction. I think I had a hive on scales at the time that was showing large daily gains. Sure enough, there were great fields, with an unusual crop of red and white clover, and every thing was going on swimmingly and to my great delight, until one bright morning in June, when clover was just doing its best, a great swarm issued from the Giantess' hive, and made a beeline without any preliminaries, circling off to the northwest.

I was so vexed and put out by losing this great swarm and that valuable queen that I declared I would have her yet if it was a possible thing. Of course my friends and

acquaintances who had laughed at me before on account of my enthusiasm laughed harder still, and joked about chasing runaway bees. I hired an experienced bee-hunter, the one mentioned in our A B C book; and as soon as the honey-yield was partly over so he could get the bees to work on "bait" he located the colony in the top of a large oak-tree a mile away in my father-in-law's woods. The tree was soon cut down, and the Giantess put into a hive and brought back home. This whole matter was given in GLEANINGS at the time, and numerous letters were received to the effect that bees often select a locality before swarming. Quite a number of careful observers had seen them going out and in holes and hollow trees, quite busy for several days before the swarm actually took its departure, led by the queen. The case mentioned in the communication referred to was one of this kind. The bees had made all arrangements for migrating to the new domicile by repeated visits each day for several days before the swarm came out; therefore there was no need nor sense in their clustering anywhere.

ARE WE READY FOR IMPROVEMENT OF STOCK?

Does it Pay Now?

From time to time articles appear in the bee papers on the desirability of breeding bees, or suggestions as to methods whereby this may be done. There seems to be a practical unanimity of opinion that, if we could but control matings, the bees would be vastly improved, and that the beekeeping industry would be benefited beyond our fondest hopes. That bees could be changed

and improved may be accepted as certain in view of the marvelous changes that have been made in plants and other animals.

The present article is written anonymously, for the reason that the thoughts herein expressed are not the opinions of the writer, but are merely questionings that have come to his mind. It would be a terrible blow to be credited with believing every doubt that may arise in one's mind.

Let us suppose a case. Two men in the basswood section of Wisconsin are engaged in producing comb honey. One has 150 colonies of fine stock which he is constantly seeking to improve, and actually is improving, by selecting his best queens as breeders. The other has 250 colonies kept in good condition; but he spends no energy or time in breeding. Assuming that the two men are identically situated and similarly equipped in apparatus and experience, and that they spend the same time in the apiary, will the first get 66⅔ per cent more per colony, and harvest as large a crop as his neighbor with the same labor?

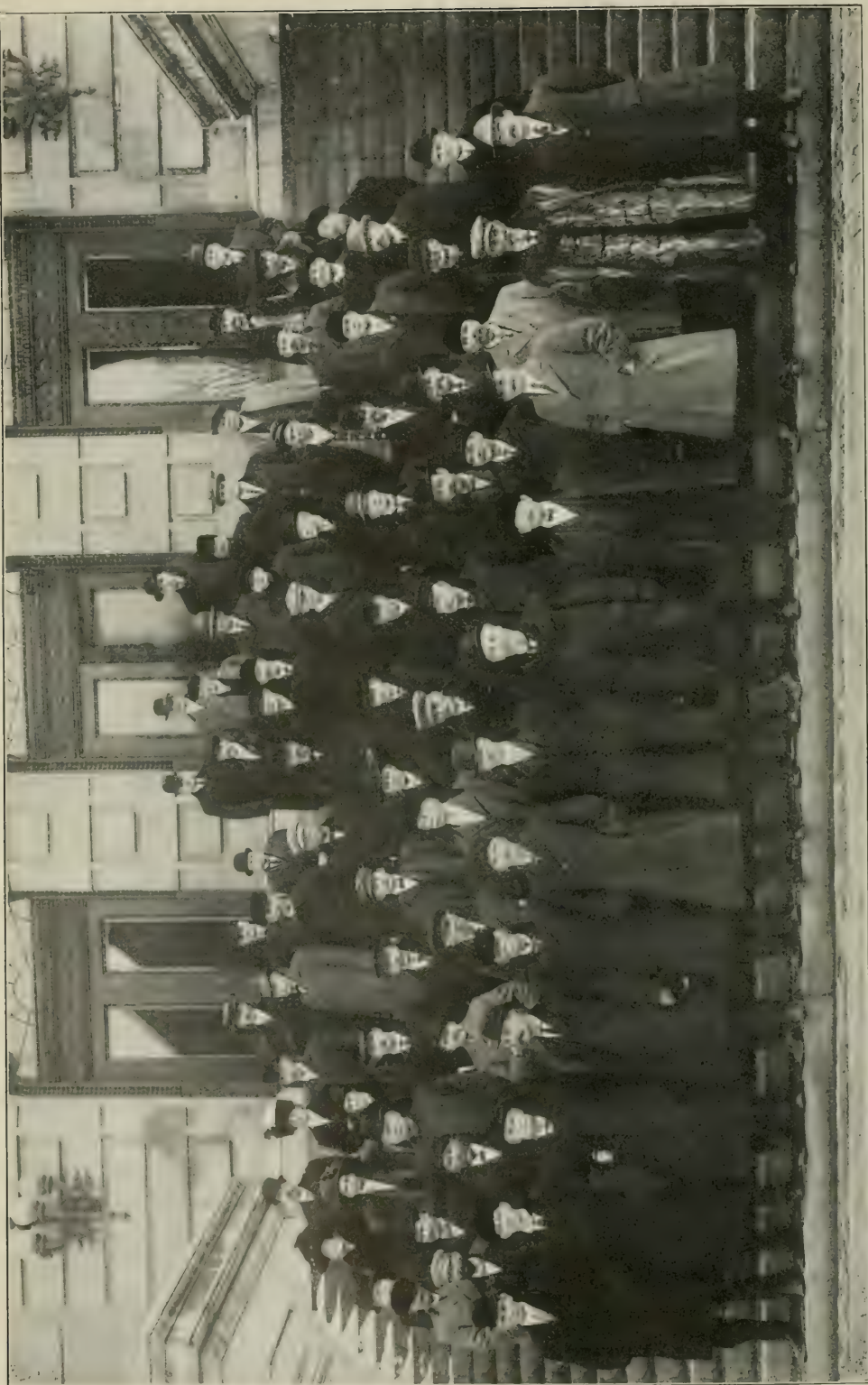
Another case of A and B may be supposed. A is a breeder of fine bees, and maintains an apiary in Southern Michigan. He runs 200 colonies for extracted honey, and values his colonies at \$10.00 each because they are of superior stock. They have actually cost him that in time. B has his \$2000 in cash (and as much ability as a beekeeper as A), and goes to Kentucky to buy cheap bees. Five hundred colonies ranging in price from \$1.00 to \$2.00 in box hives are shipped north into a locality exactly comparable to A's. Coming as they do from further south they are stronger at the beginning of the clover flow than those in A's apiary. At the end of the supposed good season, A has a nice crop of honey. B extracts all the honey in

his colonies, melts up the combs, and burns up the boxes and poor hives which were used as brood-chambers. The wax is worth at least \$500, and with that start does it seem likely that A can close the season with as much cash as B has, over and above his original capital? If A clears \$10.00 per colony, it is necessary for B to clear \$4.00 plus the cost of the colony, and minus what he gets for the wax. It is a safe bet that A will work as hard requeening his prize apiary and carefully manipulating his colonies as B will with his 500 wrecks.

I have (supposedly) a fine apiary in Central New York. I must leave at least 30 pounds per colony for outdoor wintering, which is worth, at a low estimate, \$3.00. I can buy bees in Pennsylvania, and move them north for \$3.00 per colony in the spring; and on account of the more advanced season in Pennsylvania they will arrive actually stronger than I can get my own. If I kill my colonies after the honey-flow I save at least \$3.00 per colony, and get the wax. I eliminate winter loss as well as expense, and have nothing to worry me in the winter except my bank account.

Being nomadic I also own a string of apiaries in California. These too are composed of supposition colonies. I must leave 40 or 50 pounds to get bees through from one flow to the next. All around me are men who do not know what bees are worth. Shall I melt up my combs and buy new colonies next year and sell that honey for \$2.50 or more, and the combs for \$1.50?

My Uncle Tobias has an apiary of 100 colonies in Northern Indiana. His location would support more colonies, or he can improve his stock so that the same number will cover the territory. He probably gets on an average 75 per cent of the nectar.



New York State convention, held in January, 1912, at Syracuse, N. Y. A partial report of this meeting was given by R. F. Holtermann, page 177, March 15.



Dr. L. A. Simmon and his swarm controller connecting the entrance of the colony being treated with the "annex."

Will it pay him to increase or to breed to get the other 25 per cent? Not Uncle Tob. He is starting another apiary of 100 colonies to get another 75 per cent with about the same labor.

The point of all this is, are we ready for improved stock? Is it practical in the present undeveloped condition of the beekeeping territory to spend time on intensive beekeeping? There is more to this than breeding, for the same suggestions apply to many of the "advanced" manipulations. Much of the above isn't true, but it may be worth thinking on some winter evening.

Moral.—Mow the grass in your apiary if you wish, but don't wear it out by walking on it.

HOW TO CONTROL THE SWARMING IMPULSE WHEN ONCE ESTABLISHED

A Continuation of the Discussion Started on Page 137, March 1

BY DR. L. A. SIMMON

Every practical beekeeper knows the difficulty in controlling the swarming fever when once developed. Whatever method we employ must have for its object the gratifying of that desire in order to eliminate it. To illustrate the strength of this impulse, and the tenacity with which they cling to the desire and determination to swarm, I will cite the following example:

I had one colony that was used as a check in experimental work, that was not provided with the swarm-controller, but had abundant super room. This colony developed the swarming impulse in July. I cut out all queen-cells and depleted the working

forces by removing part of the brood, replacing with full sheets of foundation; and yet, about every two weeks I would find a new crop of queen-cells in the hive. On Sept. 19 I swapped queens with a colony whose bees had never swarmed. To day, Oct. 28, there are nine ripe queen-cells in this hive with the swarming queen, while the other hive, where queen-cells had been the rule for three months, but now presided over by a

non-swarming queen, is breeding well and has ceased to build queen-cells. This experiment would indicate that in this case the swarming impulse lies with the queen. It is not probable, however, that the queen always takes the initiative, for there are a number of auxiliary contributing causes that have their share of influence at times; and in order to check those influences they must be gratified, or, as in the case above cited, they will continue.

In any case, where adequate controlling measures have not been installed in time, and queen-cells have made their appearance in the hive, adjust your hives as seen in the cut. The right-hand hive is the cell-building colony. The left is the annex, which is filled with full sheets of foundation. The swarm-controller, which is attached to the annex, must have the rear chamber of the controller closed between the two hives by means of the slides, and the shutter at the back. The bees now have access to the annex through the front vestibule. This arrangement should be made two or three days previous to further manipulations, so that the bees will become acquainted with the new entrance, and have time to investigate the annex. When the queen-cells are nearly ripe, open the hives about noon; and after removing two of the frames of foundation from the left side, transfer two combs of honey and sealed brood with the queen from the right side to the annex on the left. Now close the entrance of the old hive leading into the front vestibule of the controller, and at the same time open the entrance of the annex communicating with the front vestibule. Next open the regular entrance of the old hive, or the one at the opposite end from the controller. The bees will now



Sweet-clover hay cut with a mowing-machine, and raked into cocks for curing.

take their flight from this new entrance, and return to the common entrance of the swarm-controller, and enter the annex, or hive on the left, where they find their queen and the conditions that satisfy the swarming impulse; viz., a new hive, combs to build, and relief from a crowded house. The supers should now be replaced, one over each hive.

Two courses are now open in dealing with the queen-cells in the old hive. They may be cut out and destroyed, or placed in nursery cages to be utilized in making further increase; or one of the choice cells may be left to hatch and become fertilized. If the first plan of removing all queen-cells be adopted, cells will require to be cut out again in eight days. The old colony will then be without material from which to rear a queen, and the entrance to the swarm-controller on the side next to the old hive may now be opened, and the regular entrance, or the one at the back of the hive, closed, compelling the bees again to work through the controller. Both divisions are now working from one common entrance; and, being of the same family odor, they will very soon intermingle; and, finding their queen on the left side in the annex, most of the bees will return to her, and the original conditions of the hive will be re-established, minus the desire to swarm, which has been gratified and eliminated.

Having two sets of combs now instead of one, the select combs are placed with the queen, and all others stored in the annex, where enough bees will remain to care for any surplus thus stored. If it is desired to save one choice queen-cell in the old hive

the same process of division is employed as above; and when the young queen is fertilized, having taken her flight from the extreme right of the old hive, this entrance is now closed, and the entrance into the swarm-controller opened. The two colonies now work from one common entrance, the front vestibule of the controller. After a few days place a queen-excluder over the old queen in the annex, and on top of the excluder an empty hive body. Transfer all the frames with their adhering bees and young queen into this empty super, over the excluder. Fill the old hive with frames of foundation, and allow it to remain as annex, and place all supers over the queens. We now have a double-decker with two hive bodies, two queens, and two supers, as seen in the cut. If it is not desired to work the two queens in this way, one of the divisions may be moved to a new location. If this course is chosen, both colonies should be sufficiently strong, and equalized before separating.

It will be observed that the first process controls the swarming impulse without making increase. The second process doubles the breeding capacity of the hive; but all the bees work together in common, storing in the one set of supers. The third plan divides permanently the working force, and is one method of making increase. The bee-keeper will be governed by conditions present as to which course to pursue. If the swarming impulse comes on during a great honey flow the first plan is obviously the one to employ as this will give the least possible break in the working forces. By placing a super over each division for the eight

days required, the bees will store nearly the same amount of honey as when working together.

Auburndale, Fla.

To be continued.

SWEET CLOVER AS A HAY CROP

BY FRANK COVERDALE

When I first began to grow sweet clover I had little thought of ever using it for a hay crop; but as time passed I began to see that it would answer very well as a dry feed. We experimented with one patch, and, contrary to what I had expected, a fine hay crop of superior quality was secured. This first field that we tried had been sown about the first week in May, and had been pastured to hogs until August, when all hogs were taken off. By October 10 the sweet clover stood 22 inches high, and then the mower was started. Just as soon as the hay was well wilted (but not dry enough to put in barns) it was raked into winrows and shaped into well-formed small cocks. These cocks, by the way, were just large enough so that they could be thrown on the rack in one good fork-load all at one time. This avoided scattering the leaves, which are as valuable as so much wheat bran. From this the reader will see the importance of putting up the hay so that it is not too dry when handled. All the handling, in fact, should be done while it is green and tough, when it can be gotten into the cocks before any leaves will be scattered around. It should stand in cocks until it is sufficiently cured to keep in the mow. We have always found that this clover has kept well when managed in this way.

White sweet clover is the worst of any of the clovers that I know of, to scatter its leaves when overdry; and the leaves being thick and meaty are surpassed by those of no other legume. A dairyman is lucky who has a good winter supply of first-year sweet-clover hay for his cows.

The cocks referred to will stand many rains and still be very good feed. Sweet clover sheds water better than common clover, and it has a smooth stem. The common red clover, because of its hairy stem, holds moisture, and quickly turns black and becomes unfit for feed. I have been happily surprised to find that this first-year hay cures the nicest of any that I have ever made.

This coming fall we shall have fully forty acres of this kind of hay to make, and we intend to use a side-delivery mower; and, when it is sufficiently dry, to use a hay-loader. We think we shall not have much loss when we follow this plan; and when there are large fields this latter plan is much faster than any other. There should be two wagons, one loading and the other unloading at the barn.

I know of no other clover that can be depended upon to make a good hay crop the

same year as sown. It has often been tall enough to mow in July; but at this time it would be very dangerous to mow it unless care were taken; for as yet there are no crown sprouts started; and if one mows the clover close to the ground in July, much of it will be killed outright. On this account, if one wishes to mow the first clover in July, or before the crown sprouts start, the machine must be set so as to cut high enough to leave stubbles that have a few leaves to make a start for the next crop. When the crown sprouts are started, the mower may be run close to the ground with perfect safety. These crown sprouts on the first-year crop will be seen close to the roots after removing about an inch of dirt. This is the reason, by the way, why this clover will not winterkill. The crown sprouts are about an inch below the surface of the ground, so that a covering during the winter is a certainty—a point of vast importance to one who is depending upon this clover the coming season.

MAKING HAY FROM THE SECOND-YEAR GROWTH.

Handling the second-year growth is, perhaps, a more difficult problem, as the clover gets very rank early in the season before good curing weather arrives. In this respect it is just like alfalfa. We have never dared to try and cure the hay until along in June; but at the same time every effort that we have made has been successful; we have never yet made a forkful of poor sweet-clover hay. With the improved variety of white sweet clover that we now grow, I am not sure but that we might cure the hay even as early as the 1st of June. If we could do this, the problem of making hay from second-year's white clover would be solved, and two good cuttings could be easily made during the second year, and a seed crop secured late in the fall.

There are many ways in which this clover can be handled for hay. One plan, which is very successful and easily carried out, is to wait until the clover is in bloom, and just beginning to form seed. This is just before the leaves begin to show yellow. While the foliage is still on, go over the field with a self-binder and set in shock rows, two and two. These bundles will cure nice and green, and will dry very quickly. They should be hauled and stacked like oats until winter, when the bands may be cut and the bundles thrown in the mangers for any kind of stock. It will keep perfectly dry if well stacked, and will make very satisfactory feed. The binder should be run high enough to leave behind a stubble which contains a few leaves, otherwise it will die out. If the leaves are left on, a nice crop of seed of excellent quality can be cut later in the fall.

Another plan is to pasture the second-year clover with some kind of live stock until late in May or the first of June. The hay will then be just about right in good hay weather, and can be made just as though it were a first-year crop. The stubble should be left high, as shown in the illustration.

It will be seen that some of the clover in the picture has not been cut well. In explanation, I will say that, just before we started to cut this hay, a new pitman arm had been put on the mower, and it drew the sickle too far one way, and hardly cut at all on the return stroke. If this had not been the case, there would have been a smooth top.

The cocks of hay shown were out in two showers, but nothing was colored except the outside. The middle cured to perfection, and went to the barn as green as tea leaves. This field was mown when just coming into bloom, and the stubble grew up and made a seed crop.

The reader may be interested to know that clover of any kind in this part of Iowa was very rare last year, as severe drouth had killed all other clovers except a little alsike here and there. Sweet clover grew as though there had been no drouth.

Delmar, Iowa.

THE WHITE FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL

White flowers are most common in our flora as well as in that of Europe, and 955 species occur in northeastern America. They contain no pigments. Like the snow and powdered glass they owe their color to their optical properties—that is, to the reflection and refraction of the rays of light by the minute cells of which they are composed. To produce a vast number of blossoms must, of course, tax the energies of a plant, and the absence of pigments lessens this expenditure. Like white leaves, I believe that white flowers are the result of retrogression or degeneration. Any brightly-colored flower may occasionally revert to white. Whatever impairs the vigor and vitality of the plant, as cold, impoverished soil, injury to the roots, or continued self-fertilization, will cause the floral hues to become paler, or change to white. I once transplanted a scarlet poppy when in bud, and the flowers became much smaller, and changed to pure white. White flowers are most common in the cold days of May, and gradually become rarer toward autumn. In the arctic climate of Spitzbergen the flowers are chiefly white, and there are few yellow and red, while blue appears to fail entirely. In East Greenland the flowers are likewise chiefly white.

On the other hand, whatever stimulates the growth of a plant, as bright sunlight, strong manures, or crossing, increases the brilliancy of the flowers. When lowland white flowers have been cultivated in the intense light of alpine heights they have in some cases become red. An application of nitrate of soda will increase the brilliancy of a flower; and tulips, when treated with strong manure, flush and lose their variegated colors. The brightness of the floral hues is also increased by crossing.

From this point of view we can under-

stand why white flowers are most common in nature, and why they are truest to name under cultivation. Naturally florists find that they can develop any desired color variety from a white flower more easily than from one already containing pigments.

Nature is an excellent economist. Trees and shrubs whose fruits are edible by man or birds usually produce their blossoms in boundless profusion, and they are almost invariably white, or nearly so—the two most noteworthy exceptions being the peach and the huckleberry, which have red or reddish blossoms. Among trees are the apple, pear, plum, cherries in variety, the quince and the orange; while among shrubs are the blackberries, raspberries, blueberries, the hollies, cornels, viburnums, and thornbushes. All of these species contain nectar, and are visited by honey bees.

There is nothing more beautiful in the floral vegetation of the world than an apple orchard laden with expanding blossoms. The great masses of flowers form billowing banks of whiteness, tinged with rose and flecked with the vivid green of the unfolding leaf-buds, from which exhales the well-known sweet fragrance of the apple blossom.

Spring walks abroad in all the fields to-day;

Her touch has left the apple orchards white;

The baby buds that waited for the May

Have shaken out their petals overnight;

Against the rugged boughs they softly press.

Weaving in the mantle of their loveliness.

Spring walks abroad with songs of life and cheer:

A thousand gifts she joyfully bestows;

But all her fairest handiwork is here

Where orchards toss their drifts of scented snows.

Alfred Russel Wallace, who spent many years of his life in exploring the vast forests of the Amazon and the islands of the Malay Archipelago, declares, "I have never seen any thing more glorious than an old crab-tree in full blossom; and the horse-chestnut, lilac, and laburnum will vie with the choicest tropical trees and shrubs." The cornels and viburnums are justly ranked among our handsomest shrubs, for the great clusters of white flowers transform the whole shrub into a huge bouquet.

The largest tree flowers known belong to the magnolia. One southern species has a white flower with a purple center which measures ten inches across. "Their effect in early spring is grand beyond description, illuminating the whole landscape and filling the air with rich perfume." Of the five northern species, four are white and one is greenish yellow. Magnificent white flowers are likewise displayed by several species of pond lilies; but very frequently white flowers are of small size, and conspicuousness is gained by their aggregation in masses.

Small densely clustered white flowers standing in the same horizontal plane, and affording a convenient landing-place for insects, are very common in the mustard, saxifrage, carrot, cornel, honeysuckle, and aster families. This type of flower cluster is excellently illustrated by the carrot family or *Umbelliferae*. To this family belong the

caraway and carrot, the wild parsnip, the water hemlock, and water parsley—plants growing luxuriantly by the roadside, along the river, and in the meadow. The flowers differ very little in structure, and the species can be identified only by the aid of the mature fruit. The nectar is secreted in a thin layer by a fleshy disc surrounding the style. Insects of every kind are made welcome, and no other family of flowers has so large a number and variety of visitors. On some species more than 200 different kinds of insects have been collected. The anthers and stigmas mature at different times, so that self-fertilization is prevented. Admirable simplicity and perfection are here combined. This type of flower is not, however, well adapted to honeybees, partly because of the scarcity of the nectar, partly because of the great number of other guests, and partly because the nectar on a flat surface can not be easily collected by long-tongued insects.

In the heath and huckleberry families there are many small white cup-shaped or urn-shaped pendulous flowers which are very attractive to honeybees and bumblebees. In the orchid, pea, mint, and figwort families there occur many irregular white flowers which have been derived from yellow, red, or blue ancestors, partly as the result of retrogression and partly, perhaps, because of the advantage arising from a contrast of colors between closely allied species blooming at the same time. Asa Gray is reported to have said that any colored flower might revert to white, and this is undoubtedly true.

Finally there are many very small white flowers which are solitary, or at least not densely clustered, which are of little value to the beekeeper. Some fifty-six such species belong to the pink family; they are low-tufted weak herbs of a spreading or ascending habit represented by the chickweeds and sandworts. They are chiefly visited by flies, beetles, and the smaller bees.

White flowers probably exceed all others in importance to the beekeeper. Says the A B C of Bee Culture, "We could better spare any of the rest, and I might say all of the rest, than our white clover that grows so plentifully as to be almost unnoticed everywhere." Besides the white and sweet clovers there are the buckwheat, button-bush, locust, palmettos, and a great variety of fruit-trees and berry-bushes. Scholl states that in Texas the sweet clover (*Melilotus alba*) and the common hoarhound are both important honey plants.

Waldoboro, Me.

patent and well known. Thus the male has no wax-pockets, for obvious reasons. Everybody knows it has no sting—not even a rudimentary trace of one. Wax-glands would be a superfluity, and therefore, wisely, they do not exist. A drone with a fully developed honey-sac would be an anomaly, because it carries no load of sweet nectar into the hive, and regurgitates no honey into the cells; yet it has a rudimentary honey-sac fairly developed. A true stomach it has; but the parts in the worker yielding the chyle food for the young are absent, and the whole of the four systems of gland structure are either absent, degenerated, or show only a trace of their existence. He does no work in the hive, for the very good reason that he is incapable of performing any, the tools with which these various labors are carried out having been denied him. The button, or spoon, on the point of his tongue has been atrophied, so that he can sip no nectar from the flowers. The rod is invisible on his tongue, therefore he can not collect honey; while if he could, the absence of the appliances for regurgitating the true nectar into the cells shows us he could not store honey, even were he capable of collecting it. His hind legs lack pollen-baskets, and he has no currycombs or pincers. Not having to take part in the elaboration of wax, its transmission from the wax-pockets by means of the pincers is not required of him. The saliva for bestowing on the scales fluidity or ductility can not be prepared by drones, neither can they use wax to construct cells or cap them. Appliances for converting the cane sugar of nectar into the grape sugar of honey would be useless, consequently they are wanting. The production of brood food and royal jelly are things impossible for these males, therefore in all drones the gland structures have been aborted, or, from the effects of sex selection, eliminated.

The worker bee is one of the most intelligent insects in creation, and is provided with a brain quick, subtle, and so far seeing that it must excite our admiration. Not only relative to size, but actually, the brain of the drone is much smaller, and especially does this hold good in the pedunculated parts where intelligence is chiefly originated. Every one knows the drone is far from having the credit of any great intellectual possession. The brain, indeed, has been atrophied in order that the sexual organs may be highly developed, just as the queen's ovaries have been perfected to the detriment of her intellectual powers. Nature often thus compensates one member of the body by the sacrifice of some less important organ.

Glancing at the body of a drone, let us now note a few points wherein he has been more highly favored than either queen or worker. In the head we find his compound eyes marvelously developed, as we shall see later, for a wise and necessary cause. His antennæ have each an extra joint, the queens and workers being provided with only twelve

THE DRONE AS COMPARED TO THE QUEEN AND WORKER

BY D. M. MACDONALD

Some points wherein there is a distinct differentiation between the drone and the two other orders of the bees in the hive are

joints to the male's thirteen. These mysterious "feelers" are also more profusely provided with "smell hollows," no fewer than of these being found on the two antennæ. They are indeed crowded together so closely as to give little or no room for the tactile hairs. For the male which is to seek the female, this is exactly what might be looked for. He possesses sixteen spiracles instead of fourteen, and thus his air-sacs are enormously developed. He has a very large spread of wing compared with that of the queen or worker while the hooklets number 24. Various other organs are more profusely covered with hairs than those of either queen or worker, and this is particularly noticeable on the front of the face, the hairs on the jaws, the feathered hairs on the digiti, the first dorsal plates, and on various parts of the abdomen. His one duty requires that he be highly fed, for only concentrated food can fully develop the contents of his spermatophore; therefore he feasts like any gourmand and lives the life of a sybarite.

If we consider the one duty of the drone's life, that for which he has been called into being, we shall at once appreciate the reason for the special development of his wing powers, the extra perfection of his antennæ, the abnormal size of his compound eyes, and the enormous number of his smell-hollows.

The drone's powers of vision and of flight are magnificent. His splendid compound eyes are admirably fitted for carrying out the one duty and function of his existence. Occupying almost the entire space on both sides of his head and a great part of the front, they are excellently adapted to assist him in carrying out his great work to perfection. In his flights through the air their immense magnifying powers enable him to pierce with keen vision the liquid blue, and so he is enabled to detect any royal virgin out for her nuptial flight, while all three ocelli, or simple eyes, placed in a close cluster right in front of his forehead, closely observe her every motion, and follow minutely every movement in her quick aerial flight. Rapid as is her progress in the pure ether, his powers of flight excel, though only in this case one out of (it may be) a thousand. Swiftly and unerringly, therefore, he pursues her until he brings about the great consummation of his existence. Those who stupidly and erroneously designate him a lazy drone should see him then, when every muscle is strained to the fullest tension, when every nerve is strung to its utmost powers; when every thought and sentiment of his being is focused on one object—to outstrip all rivals and be the first to reach the goal of his and their longings.

The race is here to the swift! All puny, weak, or starveling males; all who are small, feeble, or delicate; those undeveloped, dainty, or luxurious; and all sickly and infirm, each according to the want of vitality, drops out of the race at an early stage until only the virile, vigorous, and manly remain.

At length only a tithe of the most powerful and best developed remain as royal suitors. At last only the fittest survives and becomes the means for perpetuating the race. Here is a scheme magnificent in its conception, exquisite in its development, and perfect in its fulfillment.

Tennyson tells us that out of a thousand seeds "Nature doth make but one to bear;" and so it is with the drones in our hives. Their great number is easily explained by the fact that the queen has to go abroad on her marital flight, and that only after a prolonged and risky journey in the air does the chosen suitor meet her. Nature thus secures by an almost invariable law the survival of the fittest.

As is well known, the drone takes 24 days to develop from the egg to the perfect insect. While the egg hatches, in the ordinary, in three days, he is fed as a larva for an extra day. He takes three times as long as the queen to spin his cocoon, and continues more than double the time in the nymph stage. His food almost from the first differs. His natal cradle is much larger than that of the worker. He is fed all his life, but on a food different from that fed the queen; yet the workers highly pamper him. His voice is different, and the deep sonorous sound of his flight can never be mistaken for that of either of the others. Having no sting he can not well defend himself, and is, therefore, at the mercy of the smaller females when they wish to evict him. These subtle ladies, however, get rid of him by simply withholding the chyle food, formerly lavishly supplied, when they considered the fate of the hive might hinge on his act. Small though they are, bulky though he is, they are the masters; and when the fit time arrives for sacrificing these now useless intruders they ruthlessly carry out the act without the least compunction.

The drone was a mystery to the ancients. Why, they pondered, should a class of idlers exist in a community where all others are workers? Why should they be consumers where the workers are all producers? Being the greater bee, why should he be in subjection to the smaller? Why should they be so ruthlessly evicted? Were they simply nurses? "They sit on the cells as a hen doth on her eggs," wrote Hill. Were they bees which had lost their stings? Were they captains acting under orders of the king? Were they really a redundancy of nature? Virgil asserted that they brought the seeds of the young from the flowers. Butler came near the truth; but 150 years after, Rusden thought their great work was "sitting on the eggs." Later, Huish held that every egg is visited by the drones in the hive, and dealt with. It was only about a century ago that the researches of Huber and succeeding investigators convinced beekeepers that the only reason for the drone's existence is to fertilize the queen—which conclusion will never be questioned.

Banff, Scotland.

Heads of Grain from Different Fields

Square Beeway Sections v. the 4 x 5 Plain

1. In comparison, all points considered, for comb honey, what advantage, if any, has the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ over the $4 \times 5 \times 1\frac{1}{2}$ section?
2. Is there a preference on the part of the retailer of honey? Why?
3. Is there a preference on the part of the consumer? Why?
4. Which size stands shipping best? Why?
5. Do you consider it difficult to secure proper grading weight in $4 \times 5 \times 1\frac{1}{2}$ sections and not have honey project beyond the wood?
6. Is there any complaint that the average person handling honey bruises or sticks his finger into the 4×5 more than the $4\frac{1}{4}$?
7. Is there any difference in price of honey, one over the other?
8. What section do you advise one to start with? Why?
9. Does comb honey ship safely long distances when packed in carriers, eight cases each?
10. Is there any advantage in packing or placing each section in a carton and using the heavier shipping-case?
11. What effect will the National Association have in recommending the $4\frac{1}{4} \times 1\frac{1}{2}$ over or against the $4 \times 5 \times 1\frac{1}{2}$?

Hagerman, N. M., Jan. 30. HENRY C. BARRON.

[1. This involves the consideration of plain sections and sections with beeways. A $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ is a beeway section, while the $4 \times 5 \times 1\frac{1}{2}$ is a plain section. The plain sections are cheaper in first cost, a little easier to scrape and clean of dirt and bee-glue, take a little less room in the shipping-case, and, in the minds of a good many, present a little nicer appearance, because the comb itself comes out a little more nearly to the edge of the wood. On the other hand, there are those who object to plain sections because they are more difficult to get out of the shipping-case, more danger of abrading or damaging the surface of the comb in removing from the case, because fence separators for the plain sections are more expensive than the separators for beeway sections, and because, under some conditions during a heavy flow of honey, a small percentage of the honey will take on a washboard unevenness. This last objection is not a very important one, because only about two to five per cent of all the honey so produced will show this. There will be a larger percentage during a heavy flow of honey or in the case of extra fancy or well-filled sections.

The next question naturally revolves around the shape or size of the section. The $4\frac{1}{4}$ square is an old standard dimension. While the 4×5 or $3\frac{1}{2} \times 5$ is a newer style that was introduced in New York by Capt. J. E. Hetherington, it has come to be used quite largely now, because any article of food looks better. It is contended, that is taller than broad. The tall section is only an effort to cater toward making the package conform to all other packages holding food on the market. Pound for pound, a tall section looks larger than one that is square; and in the case of the 4×5 the section looks a great deal larger because it has a thinner comb than that in the $1\frac{1}{2}$. Again, it is argued that the bees will build out and finish a thin comb faster than they will a thick one. The experience of many buyers is that the combs in the 4×5 sections are more solidly attached than they are to the $4\frac{1}{4}$ square. Part of this is due to the thinner comb which the bees attach better, and part to the fact that there are longer vertical sides for attachment.

2. The answer to this question depends somewhat upon the locality. In many parts of the East the 4×5 section is preferred to the square one, while in the West the $4\frac{1}{4}$ square section is used almost exclusively. In many of the Eastern cities the dealers prefer the 4×5 sections. They claim that, when the square sections and tall sections are put side by side, the tall sections will outsell the square every time. On the other hand, there are some dealers who claim they notice no difference, and that customers will buy whatever is offered them.

3. This is partly answered in No. 2. As a general thing, we think we may say that, of two sections evenly filled, the customer will take the tall section because it looks larger for the same money. It is for this reason that the tall section brings a higher price in some markets than the square.

4. It is our experience that there is not a great

deal of difference; but the difference, if any, is a little in favor of the 4×5 section.

5. The answer to this question will depend somewhat upon what is the proper grading weight. The 4×5 section does not run a full pound as a rule, unless filled very full. In any case the comb should not project beyond the wood if the proper kind of fence separator is used.

6. Yes, the 4×5 section is liable to be damaged a little more than the $4\frac{1}{4}$ square; but there is no excuse for an employee or clerk punching his fingers into either section.

7. The 4×5 sections in some markets in the East bring more money than the $4\frac{1}{4}$. As a rule we think the prices run about even.

8. This will depend somewhat upon the locality and the market where the honey is to be sold. We would carefully ascertain what is the general demand in the nearest market, and adopt the section that seems to be called for the most.

9. Yes, providing plenty of straw is used under the cases.

10. Yes, the cartons have a tendency to cushion each individual section so that it does not receive the shock during shipment that it otherwise would. We also think it is an advantage to use a stronger and heavier shipping-case. For a further discussion of this general question, see GLEANINGS, page 361, of our June 15th issue, 1911.

11. It will probably have some effect with a few members; but in most cases the producers will be governed by what is called for in their markets, irrespective of any recommendations made by any bee journal or any beekeepers' association.—ED.]

Swarming a Natural Instinct of the Bee

To my mind the cause of swarming may be given in a very few words. It is the instinct which God gave the bees when he created them, in order that they might increase. If the bees had never swarmed they would not be scattered over all the face of the globe to-day.

Wm. Beucus, Aug. 1, 1911, says that the building of queen cells suggests the idea of swarming. For my part I would rather think that the idea of swarming should account for the building of queen cells. I do not believe that bees ever build a queen cell before they have the idea of swarming.

It is certain that if they never build a queen cell, and if man lets them alone, they will never cast a swarm. But when one sees queen cells started he knows at once that the bees are preparing to cast a swarm, so they must have the idea of swarming in order to cause them to start queen cells. Sometimes, of course, they build queen cells when they wish to supersede the old queen, but not at all with the idea of swarming.

Chickasha, Okla.

J. H. FLIPPO.

Bees Slow to Enter Supers

My bees will not store any honey in the brood-nest, but want to go into the super all the time. If they fill the super next to the brood-nest, then they want to swarm unless more room is given; and at the end of the season, in order to make sure of plenty of stores, I have to leave the extracting-super on the hive. Then in the spring they begin brood-rearing in this shallow super. How can I make use of winter stores in the brood-nest?

Shelbyville, Mo.

C. H. HOLLYMAN.

[Your question is quite unusual, for most beekeepers find that their bees are slow about entering the supers, and persist in storing in the brood-combs, thus cramming the queen for room. We really believe that this tendency on the part of your bees is a fortunate one; for by keeping good prolific queens you can have your colonies up to the maximum strength by the time the main flow begins. By raising the nearly completed super and putting an empty one underneath, and also providing some upward ventilation, if necessary, during the hottest weather, we think you can overcome to a certain extent the swarming. Of course you can not prevent it all when running for comb honey.

At the end of the season remove the super; and then in the fall, if there has been no late honey-flow to provide winter stores, feed the necessary amount of sugar syrup, and the bees will be obliged to store in the brood-combs.—ED.]

How Hot is the Steam-heated Knife?

I am thinking of getting one of those steam-heated uncapping-knives, but am a little doubtful as to whether it is any thing better than what we have been using. Can the steam-heated knife be kept hot enough so that it will be too warm to lay the blade on one's hand? Does not the steam-tube get in the way much of the time?

We had bountiful rains through March and so far this month, and the prospects seem fair for more. I don't know much about my bees, having been in poor health all winter. The few stands I have here at the house are in good order.

Hemet, Cal.

B. H. HUDSON.

[We have tested steam-heated knives very carefully and thoroughly at Medina. As to whether this form of knife would be more satisfactory than knives that are constantly dipped in hot water will depend somewhat upon circumstances; but we would say very decidedly that in any case where a knife works better because it is hot, a steam-heated knife will be far better than one that is dipped in hot water every minute or two. A steam-heated knife will remain so hot that you can not bear the back of your hand to the blade at any time. It has the advantage that you can keep right on uncapping, and the cappings will fall off without any sticking to the knife itself.]

The objection to the steam-heated knife is that the tube interferes a little with the free handwork; but after one becomes accustomed to working the rubber tubing he does not find it any great inconvenience. Another objection is having the little oil-stove in the same room. Sometimes the room where the uncapping is carried on is very small and quite hot. This little stove has a tendency to heat up the room; but if you have an oil-stove for heating the water for your knives, this objection would not really be against the steam-heated uncapping-knife. In a word, we would say that, where it is an advantage to use a hot knife, you will find the steam method of heating the knife far superior to the method of constantly dipping in hot water.—ED.]

No Loss in Alabama Apiary Except Laying-worker Colony

In reading the reports from different States in regard to winter losses we see no report from Alabama. Our bees came through the winter in good order, and are moving right along rearing brood. We did not have a single loss, with the exception of our laying-worker hive which we treated with sulphur.

CONSUMPTION OF HONEY AVERAGES $7\frac{3}{4}$ POUNDS PER COLONY.

On p. 153 Mr. Crane refers to Mr. Mollett's saying that it takes from 50 to 75 pounds of honey to winter a colony of bees. We don't know what part of the South Mr. Mollett lives in; but it seems to us that that amount of honey is too large an estimate.

Here are a few figures from our book. We weighed our colonies Nov. 15 and again March 1, and no one colony consumed over 12 pounds, and the average consumption was $7\frac{3}{4}$ pounds during that time. Now, we fail to see where such a difference arises. Possibly it is on account of his "locality."

Mumfords, Ala.

J. H. & J. T. CLARK.

Cooling Hives in Extremely Hot Weather by Spraying with Water

I heartily indorse the method of shading hives with boards on hot days. The method was first suggested to me by an old bee man here. On one occasion, early in April, he lost several stands through negligence in using his customary shade-boards. The comb melted and destroyed the bees. Last summer, when it was somewhat dry, I sprinkled my hives all over with water. I used an ordinary sprinkling-pot holding about a gallon, and added a tablespoonful of salt to each gallon. The evaporation cooled the hives.

Suffolk, Va., Dec. 30.

W. T. BAILEY.

How to Avoid Killing a Large Number of Bees when Putting on Supers

I have studied the bee business for eight years, but never saw in print one particular trick of the trade; and that is, how to avoid killing a good many bees when putting on supers or other fixtures. It works well to put one end of the super

down an inch forward and one inch to the side of the desired position, and to let the other end down slowly, shaking it meanwhile to let the bees get out of the way. If the hands are then placed at opposite corners of the hive with the fingers on the lower story and the palms on the super, by levering between the fingers and the palms one can easily slide the super into place. By reducing the contact surface, fewer bees are killed.

Lakeside, Cal.

G. E. PHILBROOK.

When and How to Have Foundation Drawn Out

I shall have a large amount of foundation to draw out this season. Could you tell me the best steps to take to get it drawn out as early as possible, so as not to tamper too much with the clover crop?

Guelph, Ont., April 13.

FRANK E. MILLEN.

[The only way you can have foundation drawn out before the general honey-flow is to feed with sugar syrup, half a pint to a pint daily. You may have to use more than this. This will be a very good stunt for you, because you can get the combs drawn out and filled with sugar syrup; and then when the honey-flow actually comes on, every bit of the clover will go right into the sections or supers. This is the plan that was advocated by H. R. Boardman a few years ago.—ED.]

Death of Jesse W. Thornton

On April 9, Jesse W. Thornton, ex-president and vice-president of the Washington State Beekeepers' Association, died. He had been ill for some time, but seemed to be feeling better the day he died, and was putting on his coat to go to the city when death overtook him. He was 62 years of age, and leaves a wife, one daughter, and five sons to mourn his loss. He was a minister in the German Baptist Church. He was quite an extensive beekeeper, owning about 200 colonies, and working about as many more until quite recently. He was also a member of the National Beekeepers' Association.

North Yakima, Wash.

J. B. RAMAGE.

Controlling the Clustering-place of Swarms with a Kerosene-soaked Mop

I have read that has been said about carbolized cloths. As my yard is located at the edge of timber land I have used kerosene successfully when swarms have clustered high. I shake the cluster off and sprinkle kerosene oil with a paint-brush around the spot. I also keep a very long pole in the yard, to the top of which is fastened a mop-rag soaked in kerosene. If a swarm attempts to cluster high I raise my pole so that the rag is near them, and usually their next stopping-place is lower down.

Swanville, Minn.

JOHN S. LIND.

Cramps from Eating Honey

For years I did not eat honey, on account of its doubling me up with cramps, page 226, April 15, yet there was nothing so tempting as hot biscuit, butter, and honey for breakfast. After I got bees, and there was plenty of honey around, I could not keep from trying it, and now I eat honey when I want it. Many a healthful breakfast I have of honey, biscuit, and butter, with hot-water tea. It is simply getting used to it.

Galena, Kan., April 18.

J. P. BRUMFIELD.

Colonies Wintered Successfully on Honey-dew

A few years ago I made two winter cases after a pattern I saw in GLEANINGS, to be packed with leaves or sawdust, with a three-inch entrance and tin slide to exclude light. Last summer my bees gathered some honey-dew. Mr. A. C. Miller said they would winter well on honey-dew with plenty of air, so I set them in the empty cases, gave them the width of hive entrance, and the third wrapped in red building paper. Each had a super of dry leaves and 3 lbs. of granulated sugar, but little honey. March 29 they were in fine order.

Rehoboth, Mass.

ROBERT ELWELL.

Information Wanted in Regard to the Aspinwall Hive

I should be pleased to hear from those who used the Aspinwall hive the past season.

Easton, N. Y., April 19.

E. M. SLOCUM.

Our Homes

A. I. Root

Belshazzar the king made a great feast to a thousand of his lords, and drank wine before the thousand.—DANIEL 5:1.

In the same hour came forth fingers of a man's hand, and wrote over against the candlestick upon the plaster of the wall of the king's palace; and the king saw the part of the hand that wrote.—DANIEL 5:5.

Then the king's countenance was changed, and his thoughts troubled him, so that the joints of his loins were loosed, and his knees smote one against another.—DANIEL 5:6.

Thou art weighed in the balance, and art found wanting.—DANIEL 5:27.

In that night was Belshazzar the king of the Chaldeans slain.—DANIEL 5:30.

If you have not read the fifth chapter of Daniel recently I wish you would all take a Bible now, or the first opportunity, and read that chapter. Babylon was at that time besieged. If there ever was a time when the king and all his people needed all the wisdom and sense God had given them to protect their city, it was on that very night. If I am correctly informed, the enemy were at that very hour busy in changing the course of the Euphrates River, and they had just succeeded in making the river-bed dry so that the soldiery could march unhindered through it into the city. The first verse of our text tells us that this heathen king, at a time when he *should* have been wide awake, and on the alert, was conducting a great banquet or feast, surrounded by a thousand of his lords; and he drank wine—probably the most expensive kind that the world could furnish at that time. We are told many times in the Bible that, although the great Father suffers long and is kind, there comes a time when he punishes not only individuals but cities and nations; and his rebuke and punishment are often so severe that the whole wide world sits up and takes notice.* The king was awakened from his drunken orgy by a mysterious hand writing on the wall. No wonder his knees smote one against the other. Good faithful Daniel hesitated not to tell him what it meant—"Thou art weighed in the balances, and art found wanting. Thy kingdom is divided and given to the Medes and Persians." On that same night, probably before he had fully awakened from the effects of his drunken revelry, the city was taken and the ungodly king was slain.

Now, when I apply the above well-known incident to the tragic fate of the Titanic you may think my illustration is severe and unwarranted. Let us look at it a little. From the very first I decided that the terrible curse that is resting on our nation (and the whole wide world just now more or less) was responsible for the fact that that great vessel was plowing along among the icebergs at railroad speed. What else could account for such unwarranted and unheard-of course

of action? You have all read, perhaps, over and over, the accounts of the tragedy. It was after we had had several newspaper accounts of the event that I found in one corner of a daily an intimation that some of the officers had been *drinking*. Then it came out little by little. The only man on the lookout, when he was more needed, perhaps, than ever before in *his life*, was *asleep*. Another item some days later informed us that the lookout officer on that great steamer, costing toward ten millions, had not even a *field-glass*. The pilot or lookout had *lost* the glass belonging to his post; and when he applied to the proper authority I think that this "authority" must have been drinking also, for the pilot was told that "none would be furnished" him. Other vessels in that region were crawling along slowly, and taking every precaution to avoid accidents from icebergs. I know a little about the matter, for my youngest daughter was on a ship when it struck an iceberg; and, although the motion of the vessel was slowed down to almost nothing, it tipped the vessel over on its side, and made such a consternation that those on board will never forget it. Lest you think I am misinformed, permit me to give the following extract from the *American Advance* for April 27:

As the press showed indications of covering up the seemingly well-founded report that the Titanic went to her death because of drunkenness aboard, *American Advance* wired to Dr. A. S. Gregg, Field Superintendent of the International Reform Bureau, to find out the facts. He wires, as we go to press:

"Louis Klein, a Hungarian seaman of the Titanic crew, who came here in search of work, immediately after the landing of the survivors of the wreck, has made a statement to the Austro-Hungarian consulate and to the federal authorities, charging that some men were drunk and that the only man in the lookout of the Titanic was asleep at the time the ship struck. He says the stewards had given men champagne from partly empty bottles. Klein was taken to Washington last night by a deputy United States Marshal to testify before the Senate Committee which is investigating the Titanic disaster."

American Advance has taken steps to have a staff correspondent on the ground at Washington and in attendance at the Senate Committee's hearings. We intend to probe the matter to the bottom, uncover the full facts, and we will not stick them away in an obscure corner of the paper, either. We have no liquor advertising to lose.

"The night the ship went down," said Klein, according to dispatches from Cleveland, "I was doing patrol duty on the promenade deck, starboard side. I took the watch at 9:30 o'clock, and was to keep it for six hours."

STEWARDS SERVED WINE TO MEN.

"There was a ball following a banquet of some kind going on in the saloon, and the captain and

* We copy the following from the *Scientific American* for April 27 in regard to the disaster:

"How such an experienced commander as Captain Smith should have driven his ship at full speed, and in the night, when he knew that he was in the proximity of heavy ice-fields, is a mystery which may never be cleared up.

"That underwater blow, deadly in its nature, would scarcely have been fatal had the ship been put, as she should have been, under half speed."

* He will not always chide; neither will he keep his anger forever.—PSALM 103:9.

the officers were there with many of the passengers. I thought the White Star Company was connected with it somehow. After the party the stewards served to the crew the champagne and wines that were left. I knew that many of them were drunk."

Let us now investigate a little in regard to the "drink" they had on that occasion, and see what was going on. First and foremost, it was on God's holy sabbath day. I wonder how many even *tried* to "remember" that sabbath day "to keep it holy." There was a ball following a banquet of some kind, and the captain and officers were there with many passengers—probably the *millionaire* passengers, of whom there were several. Women were rescued who had on their ball-room costumes that Sunday night. They had the most expensive drinks. I do not suppose the readers of GLEANINGS even know what a bottle of the best and highest-priced champagne costs. I am glad to confess I have never tasted champagne. I once saw a miserable drunken sot, but whom I judged by his clothing and diamonds and senseless jewelry to be a millionaire. I ran on to this poor creature in the smoking-room of a Pullman car. I never even go through the "smoking-room" if I can help it. This man, with his bloated, livid, wrinkled face, which was in striking contrast to his flashing diamonds, had just opened a bottle of champagne; but his poor shaking hand would hardly permit him to pour the foaming stuff into the glass. With eager haste that made me think of a starving man he tried to get the foaming liquid to his lips; and when he did so he acted like a drunken man catching at a straw for safety or relief. I have seen the price of champagne on the bill-of-fare on Pullman cars. Thank God it is banished from the greater part of them now. I remember seeing it priced at several dollars a bottle. A friend tells me the price is usually five dollars *and up*. There are thousands of people starving at the present time, not only in foreign lands, but many who, in consequence of the recent floods, are probably suffering from a lack of food in our own nation. Now, what do you think of a man or woman who will drink champagne at such a price when people just as good and praiseworthy in every way, near by, perhaps, are suffering for food, or, say, for a drink of milk? No wonder there is war, especially in our great cities, between labor and capital. The *Advance* suggests that the daily papers suppress the matter of drink on account of the liquor advertising they carry. Let me digress enough to say right here that I am about ready to declare I will never vote for another candidate for President, Governor of the State, nor for a public official of any kind, who has not the manliness and courage to come out squarely against the liquor-traffic.

Just one thing more about champagne. We read between the lines that it flowed as freely as water. Indeed, these drunken millionaires, some of them probably like the wretch I have described, had all they could drink (of this *expensive* wine) and more too; and out of the kindness (?) of

their hearts they sent the partly emptied bottles down to the under officers, kindly remembering the good lookout at his post while they were coming into the region of icebergs.

But, thank God, there is something to be said in the way of praise for the men on board of that ill-fated ship as well as criticism. When they were thoroughly aroused from the effects of the drink they began to look up the lifeboats. It was supposed to be such an impossibility to sink *this* vessel that the customary equipment of life-savers was cut down very much. I presume few thought there was much danger of the vessel going to the bottom—*two miles* to the bottom. This was a British ship. The crew were supposed to be under British drill, and they were a manly set of fellows besides. For safety the women and children were put into the lifeboats, with the exception of a few women who would not leave their husbands. Dear reader, probably you have never been in such a predicament. I have tried to face the question myself. Would Mrs. Root consent to step into a lifeboat and leave *me* to go down? I have not asked her; but I know without asking. She would declare in an instant that she would stand by my side in the hour of trial. My conscience troubles me to think how poorly I have remembered the oath I took to love, cherish, and protect *her*, before God and man; but when she made the same promise before God, she has for over fifty years lived up to it to the very letter. I might try to persuade her that, for the sake of the children and grandchildren, she should save her life. I might tell her I could swim and keep afloat long enough to be able to be picked up; but I do not think she would listen an instant. Thank God for these devoted, loyal, Godlike women. Mere gratitude to them for what they have done is the smallest debt we owe them. And those men, something like 1600 of them, showed their manhood and courage by unflinchingly facing death. The band played, "Nearer, my God, to thee," and kept it up until the water was up to their knees. I think one report states that the final strains of that grand old hymn (written by a woman) were given from their instruments on bended knees. If I remember, the captain of the ship rescued a baby and got it on board of one of the life-savers. He refused to be pulled in himself, even though there was room. I suppose that he and the rest of them reasoned that, when the men should see them climbing into the boats, others would try to follow, and the boats would be swamped. Some who were saved on a sort of raft made of the broken collapsible boat tell us that there were *prayers*, not only from many who never thought of praying till then, and some who knew no other form of prayer, repeated the childish ones taught them by faithful Christian mothers at the mother's knee. Whatever we may say in criticising the carelessness and the unwarrantable speed at which the

vessel was running amid dangers of that kind, let us remember the heroism and manliness of over a thousand men who, having done every thing possible to save the helpless women and children, calmly and unflinchingly faced death.

I think the tragic events narrated in the fifth chapter of Daniel must have had a wholesome effect on the people of that day and generation. The Iroquois Theater disaster in Chicago in 1903 had the wholesome effect of stirring up the whole city and other cities to the importance of remodeling great auditoriums. The Slocum disaster, six months later, when about a thousand men, women, and children, were burned to death and many drowned near New York, caused a general housecleaning and overhauling of excursion boats. And, later still, when a school at Collinwood, near Cleveland, caught fire and burned up about 180 children, a wave of reform went all over our land and over all the world. Even down at Bradentown, Fla., a hurried consultation of school directors was held, and our two-story wooden schoolhouse was speedily alive with carpenters, on one side at least, and a wide outdoor stairway was built up to the second story, equipped with doors that swing outward, so the hundreds of little ones there gathered could get out speedily and safely in case the wooden structure should take fire. I mentally thanked God every time I passed that stairway on my daily trip with the automobile. Again, a year ago last March a large factory burned in New York, resulting in the death of about 127 people, mostly young women. All escape except at the windows was cut off, and again the world was horrified by what happened, and incensed to think how easily the trouble might have been averted. But it led to an overhauling of buildings in that great manufacturing center, which may be the means of saving more lives than were lost.

Last Thursday evening here in Medina my heart was rejoiced to see almost a hundred people at our weekly prayer-meeting. I told them that I had been praying for our prayer-meeting, and inviting people to come, *for nearly forty years*, and the answer to those prayers had come during my absence last winter. Well, I was greatly touched by the young man who led the meeting. There seemed to be such a feeling of sadness and sorrow in his countenance, together with his bright shining face as he unfolded the glorious promises of the lesson before us, that I thanked God. After I got home I was told that his only little girl perished in that Collinwood fire, and the look of sadness had never been noticed until after that terrible event. It seems necessary, sometimes, in order to bring about needed reforms, and to rouse up poor sluggish humanity, that many must die as martyrs to the good cause. May God help me to be ready to die, should the time ever come, when I am needed as a martyr to the cause of spreading temperance, righteousness, and the gospel of the Lord Jesus Christ.

WIRELESS TELEGRAPHY, ETC.

Without wireless telegraphy, which seems to be making such wonderful strides just now, probably not a soul would have been saved from the Titanic in that fearful tragedy I have just been describing. Almost constantly we are hearing news of rescue on the sea by means of this wonderful means of wireless communication; and a recent issue of the *Scientific American* informs us that wireless stations are now to be set up or are being set up so as to compass the whole globe on which we live, or at least such a part of it as constitutes traffic on the sea as well as on land. Dear friends, do you ever stop to consider what the outcome is going to be if great inventions keep on during the coming fifty or sixty years as they have in the past? I can almost remember the advent of railways, great steamships, telegraphs, etc., and many of us of middle age remember when there were no electric lights, no telephones, no photographs; and even the children remember the time when there were no moving-picture shows nor flying-machines. What is coming next? It is evident that God is *now* working out his plans for humanity—plans conceived, perhaps, ages ago. Has he been waiting for us to rouse up and wake up? You and I both have seen boys brought up on the farm, or in humble homes. There was nothing in their boyhood or childhood to indicate more than ordinary ability, and now they are scattered over all the world, *some* of them occupying great and important positions, and drawing salaries *unheard* of a few years ago. Again I ask, *what is coming next?* Are we going to explore the inhabited planets? and *finally* is the great Father in his mercy, love, and goodness, letting us get just a *little* glimpse of the great unknown, *beyond* the confines of *this* transient pilgrimage?

FLORIDA INVESTMENTS.

All winter long I have been getting letters, more or less, from all over the North, from people who wanted my opinion regarding purchasing real estate down here. These people often give me a list of bargains that have been offered them, and refer to or submit the circulars and descriptions, etc. Sometimes they ask which *one* they had better invest in. My advice has been right along, don't invest in *any* of them. Do not under any circumstances think of investing in anything down here in Florida or Texas, nor anywhere else in the way of real estate, until you go and look it up yourself. Don't depend on somebody else. Some time ago there was much said about St. Cloud, a home for the "old soldiers," etc. A brother-in-law of mine has just returned from there, and gave me some points. He could hardly find words to express his indignation at the people who had swindled old soldiers by getting them to go down there and make investments. It is true that, while the excitement is high, and while the "gamble"

is going on, there is sometimes a chance to invest money, and perhaps get it back and more too. As an illustration, a brother of his invested \$100 without seeing the property, several years ago. A year later he was offered \$400 for the particular lot he had purchased. As there seemed to be a prospect that it would go still higher he did not sell out. Now, however, he would be glad to get back the original \$100 he invested; but as there are hundreds in the same predicament there is no *possible* chance of selling out at any price. St. Cloud is only an illustration of many other speculations of this kind. The "syndicate," or whatever you call them, by buying large plots of land bought some of it as low as 80 cts. an acre. They divided it up and made their lots, did a lot of advertising, and sold it for thirty or forty *dollars* an acre. If they could sell all these lots at the prices they had planned, making a city something like New York, for instance, it *would* be a big thing. Bubbles like these are being started and exploded or burst all over Florida and other States. By shrewd advertising and investing considerable money they can keep the thing going for a little while; but the outcome of the biggest part of such speculations is an abandoned town. Another thing, buying and *selling* real estate is a trade of itself; and if you have not had any experience in it you had better let it alone. *Still* another thing, a good deal of it is really *gambling*. Frauds and swindles have been so frequent in connection with the "Everglades," which you probably all read about, that the Department of Agriculture at Washington has

taken the matter in hand. Quite a few beekeepers who call to see us confess that they have invested in Florida Everglades. A good many find that their investment of their hard-earned money is in land that is under water. The syndicate promises to have the water off in due time so the land can be used for farming and agriculture. May be they will get the water off, and may be they won't. Many people also write me and ask if they can get employment down here to spend their winters. When you look about you, you see certain people who *always* have something to do, and also other people who seem to be depending on somebody to get a job for them. If you have trouble in getting something to do up North or anywhere else, I think very likely you will have trouble here. If you always have more work ahead of you than you can possibly take care of, you will find it will be a good deal the same down here. *Capable* men are wanted everywhere; but men who are always having bad luck don't seem to be wanted *here* or anywhere. Here in Bradentown, where there has been so much building going on during the past winter, there has been an unfilled call for skilled carpenters. A young carpenter from Indiana happened to pass by my place one day and stopped to talk a little. He said he had been here only six weeks, and had earned enough at carpentering to send home \$100 already. In conclusion, if you want to know about these things you *must* come down here; and, once more, don't *think* of investing money until you see what you are buying.

POULTRY DEPARTMENT

A. I. Root

TWO EGGS IN ONE DAY FROM ONE DUCK, ETC.

This has happened three or more times during the winter; and I would have said more about it had it not been for the fact that this same duck averaged only one egg a day. As is well known, the Indian Runner ducks usually lay their eggs about daylight, sometimes a little before. Well, for months past I have been getting three eggs a day from three ducks. One of the three, however, instead of laying with the others as usual, very early in the morning, at three different times, and perhaps more, instead of laying in the morning she dropped a very soft-shelled egg about dusk the night before. This made four eggs from three ducks during daylight of a single day; but on every occasion she laid no egg the next morning. Now, these eggs that were dropped prematurely the night before were all soft-shelled—so soft that, if they did not break when resting on the ground, they would break unless very carefully handled. From this I infer that it takes twelve hours or more for a duck to complete the shell so that it will be hard enough and firm enough to be han-

dled. As the ducks were spending their time during the day in the canal, and there was an abundance of shells in the same canal, I thought it could not be that they lacked lime; but after I gave them a dish of crushed oyster shell, and also another dish of mica crystal grit, no more eggs were dropped the night before.

From the above I am inclined to think that most if not all the records of hens that have laid two eggs in a day were like the above. One egg is laid very early in the morning, and the other in the afternoon or at night. Some time ago my brother wrote about finding eggs under the roosts. The roost was so low down that the eggs as they dropped into the soft dry sand were seldom broken. But my experience has been that these eggs dropped in the night or very early in the morning are mostly soft-shelled. Many of them are broken when picked up. During several past winters I have found more or less eggs under the roosts in the morning; but for some reason which I can not explain, during this winter scarcely an egg has been dropped in the night in this locality. Perhaps it is because of late our

hens have been better supplied with crushed shell and grit than ever before. Soft-shell eggs are to be avoided as far as possible, because it is almost sure to get the hens into the habit of eating their eggs.

DUCK-HOUSES, DUCK-BROODERS, ETC.

Heretofore when my growing ducks got so large as to crowd their brooder, we have been in the habit of changing them to a larger-sized house or coop. Now, changing chickens or ducks from the home that they are accustomed to, to a different one, is always a bad plan. This has been frequently talked about in the poultry journals. In a recent *American Poultry Advocate* a lady advised giving ducks more room when the weather becomes warm, by attaching a dooryard made of poultry netting. This covered dooryard would permit them to go outdoors or inside according to the weather to suit themselves. Just now (April 10) we are having warm weather down here in Florida; and I notice that, when I try to get my ducks to go in at night, they greatly prefer sitting around in front of the door. I have learned by sad experience, however, there is no safety for ducks here until half grown or more *unless* they are securely fenced in by wire cloth or otherwise during the night time; and, in fact, I lost one duck during a moonlight night when it was fully eight weeks old. I don't know what became of it unless it was taken by the midnight owls. Since then I have had them securely "fenced in" by wire cloth every night, and no more have been lost. The same is true of our chickens, both little and big. At dark I shut them all in their enclosure, and let them out again by daylight next morning.

A SCREENED "PIAZZA" FOR THE GROWING DUCKS AND CHICKENS.

This afternoon I have just added a covered wire-cloth dooryard, just like a front porch or piazza for people. Since I have seen how nice it works I am sorry that I did not have this dooryard enclosure for my little ducks whenever the weather was so warm that they *prefer* to be outdoors instead of inside. When first taken out of the incubator I have several times given them to a sitting hen, giving a hen as many as twenty or thirty. Now, I notice that very soon the little ducks begin to prefer to sit down *beside* the hen instead of getting under her wing, especially when the weather is very warm. I feel sure that the best and proper way is to let the ducklings have their choice. Whenever they want to be outdoors, right under the stars, give them the privilege. This wire-cloth enclosure is made right over the front door where they are accustomed to go in. There is no difficulty at all in getting them to go in at night; whereas if you try to drive them in, especially when it is warm, and they are crowded inside, you will hear them uttering strong protests about being cooped up when they want to be outdoors. I tell you a flock of twenty-five Indian Runner ducks *can* make a protest if things are not to their liking.

The clipping below tells where I got my idea of "front porch" all of poultry netting:

We had coops in which to keep the hens and ducklings, but the babies soon grew too independent for their mothers. They flock together in a very few days, and for this reason ducklings of different ages should be penned separately. They dislike roosting in coops, but will readily go into a pen and roost on the dry litter which should always be kept for them to rest upon, at least until settled warm weather comes. As damp roosting quarters are very bad for them, keep a part of their sleeping quarters roofed over.

DANDELIONS AS A GREEN FOOD FOR POULTRY.

On page 637, Oct. 15, 1911, I spoke about a flock of Wyandottes picking out every bit of dandelion leaf in the orchard where it was grown. Well, just now dandelions are starting up in wonderful profusion almost everywhere. Our orchard of about a hundred trees is divided into three poultry-yards—a fence down through the middle, and then a fence dividing one of the halves of the orchard. A flock of about 25 Rhode Island Reds, and three-fourths or perhaps half as many White Wyandottes, have a fourth of the orchard. While the Rhode Island Reds do not seem to be able to pasture down the dandelions they have access to, the White Wyandottes snatch up every leaf about as soon as it comes in sight. Now the Wyandottes may have a special liking for dandelions, or perhaps they have an "acquired appetite." At any rate, it seems to be the very cheapest way of giving them green food, and they certainly are a healthy lot, and are giving a fine yield of eggs. By the way, I notice in the *Inland Poultry Journal* among their short items the following:

Best poultry tonic on earth is God's tonic—the common dandelion fed freely.

Just now I clip from the *Cleveland Plain Dealer* the following:

In the feeding of ducklings, dry grain is unsuitable. They will not eat enough sharp grit to digest it. Whole wheat and cracked corn, boiled together and let stand until cold, will give good results. But they should not be confined to this alone. They should not be fed upon highly concentrated food, because they will not thrive upon it. Some people will feed their ducklings a regular cornmeal ration, with beefmeal or something similar added, and then wonder why they can not raise ducks. Meat nor ground bone should not be given to ducklings while they are small. Cornmeal should always be mixed with something lighter, such as bran or vegetables, either cooked or raw.

Ducks are very fond of dandelions chopped and mixed with ground grain. Raw cabbage, green yre, and clover are also liked. When potatoes are used, they should be boiled, then mashed, and mixed with equal parts of bran and cornmeal. If the bran and cornmeal are well moistened before being mixed with the potatoes, the mixture will be less gummy than it would be if dry meal were used. A duck can not eat sticky feed.

Never let feed become soured or fermented. It should be fresh and wholesome. Fermented food will cause convulsions in young ducks. Therefore in warm weather feed mixtures should not be allowed to stand even from one meal to another.

Now, if you are inclined to call dandelions a pest on your premises, just try feeding them to the cow, as I have spoken of several times before. If you have no cow, you certainly can afford a few chickens;

and after they learn the trick, dandelions will get to be a great part of their diet.

EGG-TESTERS—SOMETHING NEW IN THE LINE.

In my hand is a circular describing a new invention for testing eggs. A whole trayful of eggs is taken out of the incubator and set over a box containing several tungsten electric globes. The strong light from these lamps coming up through the wire bottom of a tray of eggs illuminates them sufficiently so the unfertile eggs may be picked out from the fertile ones without handling the eggs separately at all. Now, this reminds me of something that I have neglected to mention before. A little over a year ago I sold my Buckeye incubator to a lady in Florida, who lived next door. When I asked her about testing, she informed me that she tested the whole trayful at once by setting them on the carpet before a small south window. The strong light of our Florida sun came through an otherwise darkened room, and struck that tray of eggs and illuminated them sufficiently so the fertile germs were all plainly visible on the fourth or fifth day without handling the eggs. I have never tested a trayful in that way; but I have accidentally laid eggs down in a ray of sunlight, where the fertile germ was plainly visible. But I must confess there is something about it I do not fully understand. You must have your eye in a certain position regarding the sunlight, and your eye must be in the shade. Several times in handling eggs from sitting hens, say after they have been incubated about a week, I by chance brought them into a ray of sunlight while the egg was in my hand, so that the spiderlike blood-veins were plainly visible. At the present time I am not using an incubator; but I ask the friends who are doing so to experiment a little and report, and see if it is not possible to test eggs by the trayful without handling them singly. Our friends who are hatching chickens by the thousand would find such an arrangement a great help. The Reflex egg-tester is furnished by the Eureka Mfg. Co., Pekin, Ill. It is made to be operated by electricity, or by lamplight where a current can not be obtained.

The circular referred to above threatened infringers who presumed to make use of his invention without buying a machine. Now, from the clipping below, from Green's *Fruit Grower*, it would appear that it is by no means a new discovery after all. I am sure that any poultryman is at perfect liberty to use such a machine if he chooses.

A million eggs a day are received at New York, and all must be tested. The eggs are unloaded from a big case into a machine tester and passed along in front of the operator who sits opposite a reflector. The only light that reaches this reflector must go through the eggs. They are then passed on by an automatic tray. By this machine 72,000 eggs have been tested in 4½ hours. By the old method it would have taken a week or more to do the same work. Several of these machines are in use on Market Street in this city for candling the eggs each day as they come from Kansas.

THE VOCABULARY OF THE POULTRY-YARD; OR, THE LANGUAGE OF FOWLS.

If you don't take it already, be sure to send five cents for the April number of the *American Poultry Journal* (Chicago); or, better still, send fifty cents for a whole year; for the opening article from our old friend H. H. Stoddard is well worth the price to any one who loves chickens and is anxious to understand their talk. Friend S. describes their language so far as to indicate 43 different words or expressions, and I can indorse the greater part of them, and I would add at least one more. When you catch a chick that is partly tamed it utters a most plaintive, pleasing note, half way between fright and half alarm. It is such a pleasing (or pleading) babyish appeal that I almost always restore it to the flock again. It seems to say in words, "Oh! please, please let me go; don't you notice how my little heart is beating with fright?" and when set down, there is the prettiest note of gratitude and thanks.

A few days ago I gave 28 chicks, right from the incubator, to a Leghorn hen that had been only one night on a nest of eggs. She looked at the bright little family for quite a while, apparently undecided, but finally ventured just one brief little note, almost under her breath. Let us pause a moment right here, I might almost say "with uncovered heads," as in the presence of the great Ruler of this stupendous universe.

These chicks never saw a mother hen until this moment, and it is not at all certain *she* ever saw a chick before. Notwithstanding, from that wonderful instinct in her makeup, she uttered a low brief "pass-word." In a second every one of the 28 comprehended the language that was a part of their very makeup *inside the eggshell*, and every chick of the 28 gave a quick and prompt answer. Just then I laughed out loud ("right in *school*"); and she, becoming frightened, uttered another word of warning and alarm; and every "mother's son" dropped in their tracks as if dead. At first I couldn't understand it until I recalled seeing a mother partridge in the woods of northern Michigan do the same trick. The young partridges were so much the color of the brown leaves in which they hid that you could hardly decide, as they lay still as death, that they were *not* leaves. In fact, these young buttercups looked almost exactly like the baby partridges. There they lay or skulked in the grass until she decided the danger was past, and gave a *third* command to "follow her lead." Since then she has been a model queen, and her 28 a set of most obedient and loyal subjects. They are now two weeks old, and every chick is as bright and lively as a cricket.

One more suggestion in closing. Please consider that this language has been the same for centuries, possibly; and as it seems to be the one particular language used by all the domestic fowls, from the bantam to

the great Brahma, does it not indicate that they all came originally from one common stock? Now, I know the partridges have a similar code or language for their young; but I am not sufficiently acquainted with turkeys to know whether they use the same

or a different system. From my acquaintance with the Indian Runner duck I feel sure their method of communication is different, but it is a good deal along the same line. I am going to make further investigations. Will you help me?

HIGH-PRESSURE GARDENING

A. I. Root

SWEET CLOVER AND OUR DEPARTMENT OF AGRICULTURE.

I am very glad indeed to note that our Department of Agriculture has not only seen fit to recognize, but has put out a bulletin, No. 485, dated March 12, 1912, in regard to sweet clover. It has straightened out and given us so much correct information in regard to the many eccentricities of sweet clover that, as I go over its pages, I feel as if I should like to quote from every one of them; and I hope that every one of you who have been interested, and have had opinions either for or against sweet clover in the past, will send for this valuable bulletin. Years ago Dr. Miller said it was beyond his comprehension that sweet clover should grow where and when he did not expect it nor want it, when it would almost *refuse* to grow on nicely prepared soil, and this bulletin tells us why. I extract below from page 12:

It also makes an excellent growth in gravel-pits and stone-quarries, but for some reason does not seem to do well on unsettled cultivated soil. It makes its best growth where the soil is compact, and not crowded with other vegetation.

See also below:

REQUIREMENTS FOR OBTAINING A STAND OF SWEET CLOVER.

A great many farmers have noted the luxuriant growth of sweet clover along roadsides and in other uncultivated places where it grows without any special attention, but have often been disappointed by obtaining a very inferior stand when seeding it upon cultivated land. For this reason it is necessary to look rather closely into the requirements for obtaining and maintaining a successful stand of this crop.

Also the following:

SOILS ADAPTED TO SWEET CLOVER.

Almost any reasonably well-drained soil will grow sweet clover. It is more tolerant of poor drainage, overflow, and seepage conditions than alfalfa or red clover. In irrigated sections, especially where the reservoir system is in use, large bodies of land are apt to become useless for ordinary crops on account of the rising of the water-table in the fields near by. On such areas sweet clover has been observed to make a very vigorous growth.

On page 15 a reason is given for this queer behavior as follows:

PREPARATION OF A SEED-BED FOR SWEET CLOVER.

Sweet clover requires a thoroughly compacted seed-bed with just enough loose soil on top to enable the seed to be covered. The lack of a solid seed-bed is probably the chief reason why sweet clover so often fails when seeded upon *cultivated* fields. The success of the crop on poor hills from which practically all the soil has been removed by erosion, and on newly exposed clay areas where the ground is extremely hard and compact, is thus explained. One field in northern Virginia, sown on a loose seed-bed, heaved out almost completely in the spring of 1911. When a field which has been in cultivation is to be seeded to sweet clover it

should be more thoroughly firmed and better settled than if intended for other crops. Plowing, if necessary, should be done several months before seeding; but it is usually best to seed on ground such as corn stubble that does not require plowing, and depend on a disk, a turning and slicing harrow, or a spike-tooth harrow to cover the seed.

FERTILIZERS FOR SWEET CLOVER.

It is not usually necessary to apply any sort of fertilizer to the ground upon which sweet clover is to be seeded. Its success on the limestone hills, in stone-quarries, etc., would seem to indicate the need of lime in the soil. Its successful growth, however, on soils that undoubtedly are deficient in lime shows that liming may not always be necessary. Sweet clover will probably respond favorably to the regular commercial fertilizers; but owing to the ability of this crop to succeed on many poor soils, especially those of limestone origin, it is probably the better practice to hold the fertilizer and apply it to the cultivated or money crops which follow the sweet clover. No information concerning the use of fertilizers on sweet clover in this country is available.

From the above quotations you will notice that sweet clover as a rule does not seem to be suited to a loose friable soil, such as other crops and other clovers require. Below is a clipping I just found in the *National Stockman and Farmer*:

From time to time I have read in the agricultural press articles on sweet clover. I will give my experience. In 1910 I sowed 15 pounds of the white variety to the acre on a seven-acre field that had been fall plowed and was limed in 1909, and was given a heavy coat of manure in 1908. It was harrowed several times until about the 25th of May, when the seed was sown, and covered with a spike-tooth harrow. Rain came in a few days, and the season was a fair growing one for grass. Well, about one tenth of the seed started; but the plants were small, and all died before winter; but where the seed fell around the edge of the field, and in fence corners, the sweet clover fairly outdid itself. Some of the plants grew four or five feet high. In 1911 a neighbor sowed 12 pounds of buckwheat, and used fertilizer. The sweet clover seemed to all start, and at harvest was half as high as the buckwheat; but after the grain was cut the sweet-clover roots all seemed to die, and before winter were all gone.

Schuyler Co. N., Y.

STEPHEN KELLOGG.

You will see by the above that it did not seem suited at all to the soil prepared for other crops; but when the seed lodged in the hard soil over in the fence-corners it was all right, and made an astonishing growth in a very short time. On our Medina clay soil we have much trouble in winter from plants being thrown out by the frost. Strawberries especially, unless heavily mulched, are likely to be clear up on top of the ground before freezing and thawing is finally over. Some years ago a visitor, an expert strawberry-grower, was going through our grounds in the fall when the boys were hoeing out the plants that had got over into the paths on hard ground where there had been much tramping. He suggested to me that the

plants over in that hard ground would winter all right without being thrown out by the frost; and as I was very much troubled on that ground in that way, I let those struggling plants in the paths remain. It was just as he said. They wintered all right, and were not disturbed by the frost at all. Of course, mulching is a remedy for this trouble, but the strawberry-beds do not always get it. I believe successful wheat-growers have found that packing the ground by repeated rollings in order to make a very firm and hard seed-bed has a similar result; and I think that somewhere in this bulletin there is a suggestion that sweet clover must have hard ground in which to push its roots, in order to crowd that vigorous tap-root away down into the soil two or three feet. To penetrate the hard impervious subsoil there has got to be some powerful pushing, and the plant can not do this unless it has a good firm solid foothold. Do you get the idea?

FAILURE OF THE SEEDS TO GERMINATE.

For twenty or thirty years past, during which we have sold sweet-clover seed, there have been complaints that it did not come up at all, or else only a small part of the seed germinated. And we have found out, also, that, like basswood seed for instance, what did not come up one year might come the next, and so on to the third year or even later. Well, on page 16 there is a remedy besides the well-known one of freezing and thawing during winter and spring. Read the following:

SEEDING SWEET CLOVER.

It usually requires 20 to 30 lbs. of hulled seed and at least 5 lbs. more of unhulled seed per acre. A lesser weight of seed would be sufficient were it not for the fact that often one-half of the seed has such hard seed-coats that it does not germinate the first season, and therefore is practically useless. This retarded germination of the hard seed can be overcome by soaking the seed in commercial concentrated sulphuric acid for half an hour. It should then be quickly washed, using running water if possible, as sulphuric acid becomes very hot when mixed with a small proportion of water. A great deal of water is therefore necessary in order to lessen the danger of burning. The seed should then be dried off quickly by spreading it out on a floor or canvas, and stirring at intervals. The acid corrodes or eats away the hard impermeable seed-coat sufficiently to enable the seed to absorb enough moisture to germinate. This method has been investigated by Prof. H. L. Bolley, of the North Dakota Agricultural Experiment Station, and by Dr. H. H. Love and C. E. Leighty, of the New York (Cornell) Experiment Station. Tests made in the Department of Agriculture gave an increase in germination of 40 to 45 per cent. Great care must be exercised when working with sulphuric acid, as it burns the flesh and any wooden objects badly, and is especially dangerous to have around in the presence of children. The vessels used for treating the seed should be of earthen or enameled ware to prevent corrosion by the acid. After the seed is treated it should preferably be sown promptly, as it has a tendency to dry out after the coat has been eaten off by the acid, but it can be held for two weeks or a month under favorable conditions without any considerable deterioration.

FERTILIZERS FOR SWEET CLOVER.

As a rule, sweet clover does seem to do better on ground where nothing else will grow—such ground as is thrown out in making canals or deep railway cuts, for instance;

but I have *occasionally* seen tremendous growths of sweet clover on ground made very rich with old well-rotted stable manure.

SWEET CLOVER FOR FEED; THE REASON WHY SOME HORSES AND CATTLE REFUSE TO EAT IT.

I was once riding with a beekeeper in Michigan. He said they had sweet clover all around them, but his horses and cattle would not touch it. While we were talking, and the team was naturally moving at a slow pace, all at once his two horses began cropping right and left at the sweet clover that grew by the roadside. Of course we had a big laugh. But he tried to explain it by saying they had a fashion of cropping at any weed or tree, especially when it was near their dinnertime. I do not remember just now, but I think this friend discovered later that his horses and cattle *would* eat sweet clover.

Preliminary experiments with leguminous crops, even at the hands of careful experimenters, can not always be taken as final. In this connection it may be mentioned that, when cowpeas were first tried in portions of this country, it was found so difficult at first to induce stock to eat the vines, either when cured or made into ensilage, that even at a certain State experiment station the opinion was expressed that cowpeas were of no local value as feed for live stock. Subsequent developments proved that this crop has great possibilities, even in the sections where the preliminary trials showed it to be very unpromising as a feed owing to the difficulty experienced in making stock eat the forage.

Much greater difficulty is usually experienced in inducing the stock to become accustomed to sweet clover than is the case with other legumes; but the fact that in at least half of the States in the Union stock have become accustomed to eat this plant indicates that the natural distaste which stock at first show can be successfully overcome.

SWEET CLOVER AND ITS VALUE TO CROPS THAT FOLLOW IT.

At the Ohio Experiment Station sweet-clover land gave a yield of 26.9 bushels of corn, as compared with 18.6 bushels on similar land not in sweet clover the previous year. An experiment performed at Tost, Germany, showed that sweet clover preceding oats increased the yield of oats 17 bushels per acre. Part of the field was devoted to potatoes, with the result that the yield was more than doubled when compared with an adjoining plot not previously seeded to sweet clover. Some idea as to the large amount of green material which sweet clover provides for soil improvement is shown by a report from the Ontario Experiment Station in the cutting of over 30 tons of green fodder per acre, as compared with 13½ tons of mammoth clover, which stood next in rank.

Its large roots, which develop the first year, facilitate drainage and do much to break up and improve the tilth of the soils which lie below the reach of the plow, as these roots rapidly decay when the plant dies, and their effect is therefore almost immediate.

In our book on sweet clover I tell about getting a fair crop of very nice potatoes on hard unpromising clay and gravel, thrown out of a deep railway cut, by plowing under a dense crop of sweet clover when it was about a foot high.

The above are only glimpses of the valuable points of the bulletin.

It is fully illustrated with some beautiful pictures of sweet clover and crops that have been grown afterward.

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Gleanings in Bee Culture

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Editorial

LOSS OF 600 COLONIES OF BEES BY SMELTER GAS.

WE have heard that there has been a loss of 600 colonies of bees within a radius of three or four miles of a silver-smelter located at Smithville, Ontario, Canada. There is some talk of bringing an action against the smelter company; but whether any thing of this kind will be done or not we are not advised.

OUR COVER PICTURE.

THE front cover of this issue represents a characteristic piece of raspberry bee pasturage in Northern Michigan. The photo was made by the late W. Z. Hutchinson. Raspberries do best away from cultivated land in territory that has been lumbered over, with a growth of small trees just high enough to shade the bushes. Such pasturage unfortunately is not permanent, because, as the trees grow taller, they choke out the bushes, and the first forest fire cleans them out entirely. For that reason, two years ago many beekeepers had to move their apiaries from the raspberry to other territory that had not been devastated by forest fires.

Raspberry honey, by the way, is regarded as one of the finest honeys in the world. Mr. W. Z. Hutchinson had no trouble in selling all he could produce of it at two or three cents above the market price.

BEES FOR SALE

IN view of the severe winter losses, and with a desire to help out those who wish to make a start again, we promised to give a list of those who have bees for sale. The following have sent in their names:

Geo. E. Smith, Hampstead, Md.; S. W. Taylor, Shickshinny, Pa.; H. E. Zech, Seven Valleys, Pa.; J. I. Elliot, Punxsutawney, Pa.; G. W. Strangways, Creek Bank, Ont.; R. J. Smith, Ticonderoga, N. Y.; J. H. Manchester, Preble, N. Y.; S. J. Alexander, Fisher, Ark.; Mrs. Almida Ellis, Fremont, Mo.; Frederick, Ill.; T. E. Hudson, Norfolk, Va.; Vern O. Derby, Wileyville, West Va.

The only caution we wish to enter is that the purchaser make sure that the bees are free from disease of any sort, and that he give instructions to have the hives before shipping screened at the top and bottom. No very strong colony should be sent by rail. The extra-strong ones should be divided and put into separate hives. Frames should be securely fastened, and combs, if

not wired, should be well attached to the top-bar and end-bars at least.

Those in need of bees would do well to write to the parties named; and do not forget that the express on small lots will be one and one half times the ordinary rate.

TROUBLE IN CALIFORNIA.

JUST as we go to press, information comes to us that Prof. A. J. Cook, State Horticultural Commissioner of California, is being severely censured by the fruit-growers because he summarily removed Chief Deputy Quarantine Officer Brenner, who has charge of keeping fruit pests from being imported into California.

And there seems to be also some trouble over car load shipments of bees from Utah and Nevada into California, on the ground that they would be overloading territory that is already overstocked, and of the danger of bringing bee disease. At this writing we have insufficient data upon which to base any judgment as to the merits of either case. Our California editor, Mr. P. C. Chadwick, will doubtless have something to say on the matter later on.

A REMARKABLY SUCCESSFUL SHIPMENT OF 500 THREE-FRAME NUCLEI FROM FLORIDA TO OHIO.

WE sent our apiarist, Mr. J. E. Marchant, early this spring down to his father's, in Sumatra, Fla., after a carload of bees. We had previously shipped down 500 three-frame nucleus hives in the flat. These were nailed up and filled with bees, and started northward May 6, arriving here on the 13th in splendid order in spite of the extremely hot weather at the time of starting, and very cold and rainy weather, ending in a snowstorm, just before they arrived at Medina. So successful was the shipment that Mr. Marchant has been sent down for another carload, and we expect him to arrive at Medina on the 3d of June. Full details, with illustrations, will be given in our next issue. In the mean time we feel that we have a fine lot of Italian bees from the territory where foul brood was never known to exist. In fact, so far as we know there is no foul brood—either European or American—in all Florida at the present time. Years ago a little was known on the east coast; but in the Appalachian region of

Northwest Florida foul brood has never been known.

The first car of bees arrived in time to catch the fruit-bloom flow, and a second shipment will arrive in ample time to catch clover and basswood. The bees did not leave Florida until they had gone through the heaviest of the tupelo flow. We are, therefore, making the same bees do service through two honey-flows.

MORE BEES KILLED FROM SPRAYING FRUIT TREES WHILE IN BLOOM.

EVERY year we get more or less of complaints about the time fruit trees are in bloom, showing losses of adult bees while the trees are being sprayed. The following is another sample of some of the letters we get:

Can any thing at all be done to secure legislation in Ohio relative to the spraying of fruit trees? The seriousness of the condition demands that some very stringent action be taken at once by beekeepers, and all interested in that pursuit, if beekeeping is ever again to be profitable in this State. A customer at Etna, Licking County, Ohio, writes me that he has lost ten hives of bees on account of spraying done by his neighbors. This is but one of many complaints of this kind. It seems that, in spite of all the information on this subject circulated by Government bulletins and agricultural and apicultural publications, a large proportion of the fruit-growers persist in doing their spraying while the trees are in full bloom. Is it ignorance or sheer devilishness? I am inclined to think it is a little of both.

If the weather for the last month or six weeks has been as favorable elsewhere as it has been in this immediate vicinity, the amount of spring dwindling ought not to be excessive, and I am inclined to believe that not a few of the cases of dwindling reported can be traced to this spraying nuisance.

Surely the apiarian interests of this State, if combined, are powerful enough to secure legislation that will afford some relief from a condition that is becoming intolerable.

Zanesville, O., May 17.

E. W. PEIRCE.

Now, we don't know whether an anti-spraying law could be secured in Ohio or not. One is in force in Michigan and in New York, and, if we are correct, two or three States in the West have similar legislation. Some believe (and they are men whose opinions are worth considering) that these losses are due rather to the presence of bee disease than to the spraying liquids. We hardly share this view, for the reason that these complaints come regularly just about the time that the trees are in bloom. As the bees are found dead in front of the entrances of the hives, and as foul brood and European foul brood attack only the larvæ, or bees in the brood stage, we can not get away from the belief that the bees die because they are sprayed at the wrong time. We should be pleased to get further reports.

A POSSIBLE LOOPHOLE IN THE RECENT POSTOFFICE RULING RESPECTING THE MAILING OF QUEEN BEES.

DOOLITTLE & CLARK draw our attention to the fact that the postal ruling concerning the mailing of queen bees, and given on page 292 of our last issue, does not make it obligatory on the part of the breeder to

boil the honey he uses in his queen-cage candy providing he can furnish a copy of a certificate to the effect that his apiary from which queens were taken was duly inspected by a State inspector, and found to be free from disease. It would thus be possible for a careless queen-breeder whose queen-rearing apiary has been inspected, to buy honey of unknown source, make queen-cage candy of it without previous boiling, and still keep within the postal ruling. Evidently here would be a loophole by which the disease could be carried in queen-cage candy. Messrs. Doolittle & Clark take the view (and we share the same opinion), that the Postoffice Department, in making this alternative ruling, had in mind those queen-breeders who would not be able to secure the services of a State or Government inspector except at a prohibitive price, that it made the alternative ruling so that such breeder could continue to send out queens, providing he boiled the honey which he used in making queen-cage candy. While technically it might be possible to send bee disease and not violate the ruling, yet we believe that all right-minded queen-breeders who are desirous of fostering and protecting the very industry from which they derive their own bread and butter will comply, wherever possible, with both regulations—that is to say, they will send out a copy of a certificate from their State inspector showing that their apiary has been inspected, and found free of disease, and likewise a statement that the honey used in making their queen-cage candy has been boiled. We are doing this with all queens we send out. All honest breeders we feel sure will unite in supporting our Postoffice Department in making such regulations as will prevent the spread of bee diseases through the mails; and yet no one of us desires to remove any competitor when, by reason of his locality, he is unable to secure the services of an inspector.

BABY NUCLEI FOR QUEEN REARING BEING ABANDONED AT MEDINA; QUEEN REARING SIMPLIFIED FOR THE HONEY PRODUCER.

A NUMBER of years ago the general plan for mating queens was to use one and two frame nuclei, using standard-sized frames. Later on, the late E. L. Pratt, of Swarthmore, Pa., claimed he made a success of using baby nuclei containing only from 100 to 200 bees in miniature frames. This same idea had been tried out before Mr. Pratt's time, but abandoned as being impracticable, for the simple reason that these "babies" would swarm out on the least provocation—very often when young queens went out to mate. But Mr. Pratt proved that these "babies" could be made to mate queens. We demonstrated that we *could* do it also, but finally concluded that the 100 or 200 bee baby nuclei were too small. Later on we adopted larger "babies" that contained something like 1000 bees, and two frames that would have the combined area of two-

thirds of a standard Langstroth frame. These nuclei worked much better—that is to say, they are more dependable. But even *they* showed a considerable tendency to deport themselves unseemly, much after the manner of their smaller prototypes.

During the last year or so we have been trying the full-sized two and three frame nuclei, and also the larger “babies.” While the small nuclei, we thought, would mate the queens more cheaply than nuclei using standard frames, yet the latter, because of their greater reliability, and because they can be developed into colonies of bees, will, in the end, produce queens more cheaply than or as cheap as the unreliable “babies.”

We can illustrate it more specifically by putting it this way: Suppose a “baby” will mate a queen for 25 cents, and a full-sized standard nucleus for 40 cents. At the end of the season, the full-size-frame nuclei will be fair colonies, or in shape to unite with full colonies, while the “babies” are practically good for nothing. The frames will not fit any thing, and the small bunches of bees growing smaller and smaller as the season advances are not worth fussing with. The veteran queen-breeder, the late Henry Alley, who used large-sized baby nuclei for many years, made it a practice at the close of the season to shake the bees all off the frames of his “babies” on to the ground. While they *could* be put together in one lot, such a heterogeneous mass of bees, he claimed, would never make a decent colony to winter.

And he was right. This queen-rearing proposition may not be interesting to a certain class of *honey*-producers except in this way: It will convince them that, with very little trouble on their part, they can make up queen-mating nuclei; and when they have all the queens they need for their own purpose they can unite these nuclei back into colonies, especially if they take these nuclei from an outyard and bring them to a home yard where they do their uniting. It takes a great deal of skill and fussing to make the “babies” behave themselves as babies should, and the average honey producer has neither the time nor the skill to make them “behave.”

ADVERTISING FIVE-BANDED BEES.

On page 126, March 1, we made the statement that we did not believe there were a dozen colonies showing *all* five-banded bees in all the United States. On previous occasions we have protested against the advertising that *claimed* to furnish five-banded bees, and *actually* furnishing three and four banded ones instead.

Mr. Geo. M. Steele, of Philadelphia, challenged our statement on page 126, that there were not a dozen colonies showing *all* five-banded bees. He said he had sixty colonies that would go one better than five bands in 95 per cent of the workers, and that he had some five colonies that would run gold to the tip in 100 per cent of the workers.

Two years ago a representative of ours called upon Mr. Steele, and found that he had very fine yellow stock, and hoped that, when a favorable opportunity came, we would editorially make mention of the fact. This we did in our April 15th issue. Since that time two of Mr. Steele's customers have come back at us, saying that the stock they had received did not come anywhere near the standard claimed. We referred this matter to our representative, who called upon Mr. Steele again last summer, and found that the bees, at the time of his visit, were not up to the former standard; but at the time we wrote the statement on page 126 we were not aware of his second visit.

It appears that Mr. Steele had been having an extraordinary run of orders for queens, and used up all his extra-yellow stock, and in endeavoring to fill his orders he had used other yellow stock, which apparently was not equal to his own original yellow blood. Mr. Steele has just written that he will make the matter good, and we have no doubt that he will, but it is due our subscribers to state the facts as they are.

In the meantime we still insist that advertisers of yellow bees should be very careful about making statements concerning their stocks. If they run out of the special grade of queens advertised, and have to secure other stock, they should notify their customers of the fact. When a breeder offers to furnish yellow-to-the-tip or five-banded bees, he should furnish precisely that stock. If unable to do so he should charge less or return the money. In our judgment it is a great deal better to advertise extra-yellow or four and five banded stock; then if the breeder is able to furnish better—that is to say, yellow all over, or strictly five-banded bees throughout, his customer is more than pleased, and in all probability he will send a duplicate order for more bees and queens. In most if not all cases, those who have advertised the five-banded stock have been perfectly willing to send additional queens that will meet the standard; but that does not avoid complaints in the first place, nor does it release us of our embarrassment in adjusting these differences.

In the meantime we have heard from several other advertisers of five-banded stock, claiming they have stock that will run *all* five-banded. While we do not question their word, we want *proof* that will be satisfactory to our *readers* who are beginning to doubt whether there are any queens that will furnish *all* five-banded.

Later.—Mr. Steele guarantees to prove that his “breeding queens will and do produce 95 per cent over four-banded bees,” and that his “drone mothers will produce drones, 99 per cent of which will be golden to the tip. This is a considerable recession from the first statement, where he said he had “60 colonies that would go one better than five bands in 95 per cent of the workers.” This we interpreted to mean that they would be *six-banded*, while now the guarantee is for 95 per cent over *four-banded* bees only,

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

BOTTOM STARTERS $\frac{1}{4}$ inch deep in sections are advised, *Australasian Beekeeper*, p. 85, and I've seen the same thing elsewhere. The bottom-starter was born "in this locality," and many years of experience have approved $\frac{3}{8}$ as a proper depth for thin foundation. For extra thin, $\frac{1}{2}$ would likely be better; but when too shallow the bees are likely to gnaw it down.

J. E. CRANE, p. 295, I think that "mixture of honey being darker than either kind separate" meant when mixed by bees. I don't know whether that would be different from your mixing or not. Moreover, I can imagine that a mixture of two shades nearly alike might be darker than either, while a mixture of very light and very dark would be lighter than the dark.

THE BEES needed feeding, and the whole family was on the sick list. So I took the laziest plan possible. I set a tub in a sunny place, dumped in sugar and water, stirred it up, and threw in some cork chips. Worked perfectly. It was open to neighboring bees, but I could afford that for the saving in labor. Of course the strongest colonies got the lion's share, but it was easy to take frames from them and give to others. [This is a good scheme; but you do not say how much sugar you used to the water. While that is not, perhaps, so very important, yet the beginner will wish to know. Ordinarily we think it is well to make any sugar mixture for outdoor feeding very weak. Anywhere from six to ten parts of water to one of sugar is about right.—ED.]

THE TITANIC disaster has caused much comment, and there is clamor that something should be done about it. That's because it's unusual. If it occurred weekly some people would say it is all right. "How do I know?" Please tell me what is the weekly loss of life from drink as compared with the Titanic loss. [Just so. One Titanic disaster caused by an iceberg creates commotion throughout the world. As you say, there are Titanic disasters occurring every week from drink; but we are so accustomed to them that they fail to stir us up. But the world does move, and Titanic disasters due to liquor will (in another generation at least) be a thing of the past. The liquor people are beginning to see the handwriting on the wall already.—ED.]

MR. EDITOR, that's a good comparison of square beeway and 4 x 5 plain sections, page 315, but in a few points some would disagree. You don't mention that the tall section tips over easily. The plain surface makes it easier to scrape, but the greater care required in handling overbalances that, so that on the whole it is harder to clean than a beeway section. It takes less room in a case, but one large dealer says that's

against it, for the smaller case looks of less value, and the grocer goes for the bigger case. "Any article of food looks better. . . that is taller than broad." For instance, a cookie, pie, or orange. The important place for the looks of a section is on the plate. On a square or round plate the square section looks better; on an oblong plate, the tall section. Are honey-plates mostly oblong? "There is no excuse for a clerk punching his fingers into either section." Does that in the least change the fact that clerks do punch plain more than beeway? [The statement that "any article of food looks better that is taller than broad" refers to packages and not to the article itself. Orange-boxes are oblong. Packages holding cookies, such as are put out by the National Biscuit Co., are taller than broad. A section holding comb honey is a package. When that section is put into a carton the shape of the carton is more in conformity with other packages of food stuffs.—ED.]

LOUIS SCHOLL, you're just right as to the importance of good tags for hive-numbers; and if you can wake up manufacturers to the importance of listing them you'll deserve well of your fellows. I've been on the hunt for years. If I found any thing good, the price was prohibitory. The Root Co. printed some on heavy manilla, but they don't last. Aluminum tags are advertised in German journals. I sent money for a sample, but never heard from it. Until you can buy them, you can make them like mine, which are entirely satisfactory, and good for 25 years or more. Cut tin 4 x 2 $\frac{1}{2}$ inches. Paint one side white, and then put on black figures 2 inches high. Fasten on hive with a single one-inch wire nail at the upper end, driving the nail in one-third length, so it can be easily drawn out with claw-hammer.

If they can find nothing better, I suggest the following for manufacturers: A metal tag 2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ (possibly less than 1 $\frac{1}{2}$), with figures 2 inches high, a single figure on a tag. Of course there will be all the figures from 1 to 0; then if you want to tag No. 134 you will use the three separate tags, 1, 3, and 4. This will not be so convenient as the three figures on one tag; but I suppose it can be furnished cheaper. [The objection to the metal tags is the expense. If the demand were large enough, the numbers might be lithographed on the metal, making the cost merely nominal; but as a matter of fact the demand is very limited. But what is the matter with the manilla cardboard tags boiled in paraffine? We use them exclusively here at Medina, and have for the last four or five years. They are cheap enough so that, when they become soiled or faded, a new number can be put in their place.—ED.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

I have just learned of the death of Mr. Checkley, one of the inspectors of apiaries in eastern Ontario. Only a few weeks ago friend Chalmers, another inspector, also passed away. Truly death is taking a heavy toll among Ontario beekeepers the present season, for in addition to these two named, Mr. Pettit, father of our Provincial apiarist, passed away in the early spring.

An article on tobacco-raising in GLEANINGS! Whew! I happened to open March 15th issue, just at the page where the article started. First the article was read, and then I turned over to find the explanation, which was sure to be there somewhere. Well, Mr. Editor, the explanation is satisfactory, even if our finer susceptibilities did receive a bit of a shock at the unexpected; and now who knows but that, in the near future, we may see honey advertised as being slightly mixed with tobacco? Let me say that such an advertisement will not entice this honey-eater, as some of my friends have given it a bad reputation, and I will not take any chances in the matter. Last fall these friends referred to attended a church conference down in Pennsylvania; and while visiting at a home there honey was served. On asking what kind it was, they were informed that it was "tobacco" honey. With considerable misgivings they started to eat the honey, but soon found that it wouldn't go, as they tell me it had the genuine tobacco taste. Of course it may be a matter of getting used to it, as these same friends of mine told me that they could not stay in the tobacco barns on account of the burning that would affect their eyes and nostrils, while to the "natives" no harm resulted.

"Things do move" in the work of bee-journal men, the same as in other occupations. While I had been given a hint relative to the fact that the *American Bee Journal* was changing hands, the May number of the *Review* gave me a genuine surprise when I learned that the latter was being taken over by the National Association. While I regret very much to see friend York retiring from the *Journal*, yet I feel that it could not very well have fallen into better hands; and with a host of others, I wish Mr. Dadant abundant success in his new sphere of labor. I say "new," but after all that is hardly the word to use, as Mr. Dadant has been a well-known writer for apicultural journals, both home and foreign, for a long time—in fact, for so long a time that some of us younger fellows can not remember seeing bee journals without some reference to him.

The change in the *Review's* management is indeed an experiment for this side of the world. As to my private opinion in the matter, so far as the National is concerned, perhaps it would be best to reserve

judgment for the time being; at any rate, being a Canuck I am somewhat of an outsider, and might be accused of patterning after "Butinsky" if I offered any comments. I believe the general impression is that friend Tyrrell is "making good."

No doubt many have heard of the story of the chronic grumbler who lived on a certain farm. On being congratulated because of the very heavy crop in his field he replied, "Yes, it is a good crop all right; but such heavy yields are awfully hard on the land." I was reminded of the story to-day as I was driving home from one of the out-yards, when I recalled that it was with mingled feelings that I found many of the colonies in the apiary so full of bees and brood that something will have to be done before fruit bloom to keep them from swarming, if weather conditions should be favorable for the next two weeks. This is a late spring, and to-day (May 10) the pussy willows are still in bloom in some places in the shade. As I drove to the yard, the first time for weeks, I was hoping that the bees would not be weak, but just strong enough so that they would not have to be supered for fruit bloom. The reason is that I am shipping a load of bees, and am so rushed with work that I do not know how soon I can go to this yard again. Instead of the "just right" condition I had been hoping for, as already stated, some of the colonies were clustered out at the entrance, although the brood-nests were equal to 12 Langstroth frames, and we have had only a few warm days so far this season. It is needless to say the culprits were not Italians, as the latter were not so precocious, and will not suffer for a week or two, although most of them are in fair condition.

Some have reported a heavy consumption of stores the past winter; but such has not been the case with our bees unless they were stronger than usual last fall. For some reason, although we have had an abnormally cold winter and a very late cold spring, the bees that came through the winter well are very strong for the time of year. I am sorry to say, however, that in our section a good deal of the little clover we had left last fall is killed by the late spring frosts. By the way, just a few days ago one of my friends chided me for giving such pessimistic views of the prospects in our section, and remarked, "Why, the most of the fellows over the line think that Canada is about as big as a postage stamp; and when they read your notes in GLEANINGS they will come to the conclusion that there will be no honey in Canada in 1912." For fear this might be true, let me say that, in many parts of our country, the prospects are good; yet, on the other hand, many localities have but very little clover, owing to the terrible drouth of last summer.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

PARCELS POST.

What advantage is it going to be to the beekeeper to have a parcels post with a limit of eleven pounds, and a charge of twelve cents a pound to send it, when he can send merchandise by express clear across the country for half that amount, and no limit as to weight? It looks as if our servants were listening to the express companies, and also perhaps accepting their franks. We shall not get relief until the postoffice competes with the express companies, which will mean that they will be forced out of business. Why are they allowed to operate in violation of the law, as they are doing? Perhaps we should not ask for parcels post at all but should demand an enforcement of the law.



WHAT MAKES BEEKEEPING WORTH WHILE.

The ideal home is one of many interests. But one point about this ideal home is that all the interests center in and radiate from the home. The children stay at home because they would rather be there. The girls help with the housework, and practice on the piano. Then there is the workbench, and the garden and horse and cow for the boy to help with. Games and children's magazines, and music in the evening, will easily make home most attractive to children. If home is bright and pleasant it will not hurt the children to get out once in a while either.

One of the happiest memories of my boyhood was the fact that my brothers and I had free access to all the tools on the place, and we used them at the workbench. We had a cigar-box telephone from the house to the barn, and we could hear the pigeons cooing in the barn; and when we were in the barn we could hear sister playing the organ in the house. Then we had a stone-derrick in our cellar, like the big one in the stone-quarry near by. We made it ourselves, and cars and track. Practically all our play-things we had to make, which was good for us. Then we had each a piece of garden and a hive of bees. Pa would sell any thing to us that was on the place, and let us pay for it out of the sales. Brother and I bought the chickens, and sold eggs and chickens at the college boarding-houses. Then I went into Belgian hares and raised over a hundred. I didn't make much, but it was lots of fun. But the pigeons! ah, they were the real pleasure, with their cooing and fighting, and mother protesting because they would alight on the roof, and that did not improve the rain water. But we kept the pigeons. We had commys, just common pigeons, you know; then we had fantails and tumblers. We could tell every one of our birds on the wing half a mile off. And what rejoicing when one of ours would coax

a mate from some other farm! and what a sense of loss when one of our fantails got coaxed to some other place!

Nothing is finer than a home with children all alive and interested in the work and pleasures to be found on a small plot of ground, and a roof with love permeating it all. I think father and mother enjoyed their children's enthusiasm, and bravely stood the care and worry the younger ones could not know.

Do not these things make the life of a beekeeper worth while? If you are a beekeeper, and do not have this community of interests in the home and its life, I assure you that you are missing some of the richest things in life.



SELLING HONEY FROM DISEASED COLONIES.

Do you know the law in regard to foul brood in Colorado? Perhaps you are violating it unwittingly.

How to produce honey in a foul-brood district, and at the same time be reasonably sure that no diseased honey is sold, is a problem. But it can be done, and there are a few who are doing it profitably. Inspection and treatment will, perhaps, be necessary three times during the season. Inspecting and treating every diseased colony early in May or June will prevent the storing of much diseased honey later in the season. During July or August, another inspection can be given, and all honey stored by diseased colonies should be treated the same as the honey in diseased brood-combs. All colonies found diseased during this inspection should be treated the same as during the first inspection in June.

A large amount of fine honey may be obtained from these colonies; but it should be extracted or rendered, and labeled as foul honey. It can then be boiled thoroughly and fed (a questionable practice), or it may be made into vinegar. Such honey can be used to good advantage by bakeries if the empty cans are cleansed with live steam and not thrown out on the garbage-pile. The laws of some States prohibit the sale of honey from diseased hives; but it is difficult if not impossible to prove the violation of the law in most cases, so honey is constantly sold in this way. It is useless to have a clause in a law that can not be enforced.

If honey from foul-brood hives is sold to bakeries it would be a good plan to instruct the bakery of the nature of the honey, and to require those in charge to report the treatment and disposition made of the cans. It might be well to have these cans shipped back to the producer of the honey, and require the producer to obtain a permit to sell diseased honey. A record could then be kept of the whole transaction.

Conversations with Doolittle

At Borodino, New York

SIGNS OF SWARMING.

None of the books say much that is of any service to the ordinary apiarist, about the reliable signs of swarming. How do you know that a colony is about to swarm?

I suppose the reason the books have little to say about "the reliable signs of swarming" is because these reliable signs are mostly missing in an outside diagnosis regarding the issuing of the first or prime swarm from any colony. Of course there are indications that point toward the time when the prime swarm may issue; but it frequently happens, after all, that the season for watching for swarms may pass away without the issuing of a single swarm. Again, some of these signs may not appear at all; yet a swarm will issue, and one can hardly believe his eyes in seeing the bees pouring forth from that colony which he supposed would be the last to swarm.

There is no need of watching for swarms before the fruit trees blossom, in any locality where such trees abound, as these are the first which give nectar enough to tempt swarming; and, as a rule, with colonies in normal condition, not one swarm issues during fruit bloom, even in large apiaries, more than one season out of five. To digress:

If a colony supersedes or loses its queen five or six days before fruit bloom opens, then one may expect swarms from that colony about the middle of fruit bloom, if the colony is strong in bees. But such a swarm could not be considered a prime swarm, although it might properly be called a first swarm. A prime swarm is one issuing with the old or mother queen which has lived in the colony over winter. To be a little more definite, any swarm with the accompanying queen being the mother of the bees composing the swarm, can be properly called a prime swarm. All other swarms, or those having virgin or unfertile queens, should be classed as after-swarms, even though they are the first swarms of the season. But no swarm need be expected during fruit bloom, except from very strong colonies, and such colonies are the exception at this time of the year in the greater part of the United States. Swarms during fruit bloom are hardly frequent enough to pay any one to neglect other work to keep watch.

We used to have a good flow of nectar from the black locust, which came long enough before the clover so that considerable swarming was done at the beginning of clover; but the most of these trees, being of value for fence-posts, have been cut down, so that source of supply is cut off. When clover appears, one may expect swarms from all colonies which have become strong enough so that the bees cluster out on sultry days; and by the time the clover bloom has yielded nectar for a week or ten days, swarms are likely to issue from any colonies which may be considered fairly good ones.

The above is about all that can be said from merely outside appearances. Some say that bees scraping the outside of the hive, many drones flying, or any strong colony that has been at work with vigor, and then appears listless, are sure signs that a swarm will issue within a day or two; but from over forty years of experience I fail to find these any thing more than a "happen so."

If one looks inside the hive he can get much closer to indications regarding the issuing of the prime swarm; but even this is not altogether satisfactory. If he finds queen-cells with drawn-out thin side walls, in any strong colony at the beginning of clover bloom, he naturally comes to the conclusion that eggs will soon be deposited in these, when, as a rule, the swarm will issue eight or ten days later. If eggs are in these cells, then he may figure that the swarm will issue from six to nine days later, according to the length of time these eggs have been deposited; for the rule is, three days in the egg and six days in the larval form, at which time the queen-cell is sealed up; and with the sealing of this first cell comes the issuing of the prime swarm, unless unfavorable weather interferes. But for the apiarist with from 100 to 500 colonies, this examination for queen-cells of different ages is a task seldom undertaken.

I said that, as a rule, the prime swarm issues with the sealing of the first queen-cell. But at times the exceptions will almost equal the rule. During a year when the bees seem to get the "swarming fever," little attention is paid to rule, swarms issuing with the laying of the first egg, or the hatching of the first larva, or at any point between the egg and the sealing of the first cell. Then bad weather may keep the swarm back until the young queens, which mature seven days after the sealing of the cell, may be cutting their way out of these cells.

Over forty years of experience have taught me that, four years out of five, nineteen out of every twenty swarms issue according to rule; and the smaller the apiary, the nearer to the rule do they issue; that when they do issue according to this rule, the first young queen emerges from her cell seven days after the prime swarm issues, begins to pipe on the evening of the eighth day, and the first after-swarm issues during the afternoon of the ninth or the forenoon of the tenth day after the issuing of the prime swarm. The second after-swarm issues two days later; and where more are tolerated, an after-swarm will issue every day till the colony becomes so weak that swarming is given up. After-swarming may be prevented easily by cutting off or destroying all queen-cells during the early morning of the next day after a piping queen has been heard the night before.

General Correspondence

ISLE-OF-WIGHT DISEASE

Infectious Paralysis is Curable

BY SAMUEL SIMMINS

In your issue for Jan. 15, 1912, our friend Mr. D. Macdonald gives a very gloomy view of the above disease; but his conclusions are in some cases based on error. The disease is curable and can be prevented.

While Mr. Macdonald refers to only a tithe of the large apiaries that have been wiped out, your readers will be interested to know that, almost without exception, the bees thus suffering were mostly blacks or common hybrids; and in many cases no foreign blood had been introduced for many years.

In 1908 terrible havoc was caused among the bees over a large district in California by a plague of infectious paralysis. New South Wales was visited by a similar trouble in 1894 and other parts of Australia in 1906, when over a large area it was almost impossible to find an apiary without some trace of it.

The trouble has been referred to at various times by a number of American contributors to the journals—from Florida, Michigan, Ohio, Mississippi, etc., from 1890 onward. A notice in *GLEANINGS* for July 15, 1896, expressed the editor's fear that bee-paralysis was spreading over the whole of the United States; but such has not been the case, apparently, and never will be, for just here we come right to the true reason why such a dire event can not result in fact. Bee paralysis will never make headway where the majority of owners use only Italians. I am not saying that these bees are absolutely immune; but should they become infected they more readily recover. I believe the same partial immunity will be found in the case of Carniolans and Cyprians.

In my own apiary I keep no native bees, and I am exempt from the disease. I know of apiaries, in the center of the ruins of hundreds of native stocks; but the former, consisting of a high grade of Italians, remain, and do well all the time.

THE CAUSE OF BEE PARALYSIS.

This is patent to any observant beekeeper; and without troubling as to the actual origin, the practical beecowner will see how easily the malady may be overcome. Instead of being a more serious trouble than foul brood, as many panic-stricken beekeepers declare it to be, it is really one of the most simple of any bee disease to deal with. Fortunately neither the queen nor the brood is affected, so that there is a good foundation to work on.

The complaint can not be said to come as a thief in the night. Mr. Macdonald himself, as well as many others, introduced it to their apiaries by buying swarms from infected places. But where not actually con-

tracted by robbing, it is well known that the disease may exist, and has done so, in an apiary for a whole year, or even longer, before the beekeeper is awake to the reality of the visitation; and he finds he has been asleep for months while the thief has been with him all the time in broad daylight.

The only reason why the sick bees wander about on the ground, or climb on to the blades of grass, without being able to fly, is because the spiracles are practically closed, and the air sacs and trachæ are congested. This is the cause of the final trouble—constipation, or inability to evacuate.

We therefore need not concern ourselves much about the origin or the definite disease germ causing the first symptoms. We have simply to remove the obstruction by enabling the bee to fill again its air sacs and trachæ, while at the same time applying a suitable medicinal agent.

MOIST HEAT OR GENTLE STEAMING

has been found to be the basis of recovery, while adding the necessary curative agent. In the *British Bee Journal* for Oct. 5, 1911, I assured my readers that a paralyzed and bloated bee picked up from the ground, as it crawled helplessly about (in the hot sun at a temperature of 100°) would fly after being held in the closed moist hand for a few seconds. This is a most simple fact; for, though the dry heat could not help the sick bee, the warm moisture immediately acts upon the air-vessels, which are at once filled with life-giving oxygen, and the bee is off on the wing before relieving its overloaded bowel—an event afterward accomplished because of the normal pressure then exercised by the intake of air.

I have offered my numerous unfortunate correspondents a method of effectually steaming the whole contents of the hive with most satisfactory results; and after my letter to the *British Bee Journal*, as above, the moist-heat basis of cure was repeatedly proved to be a fact in truth and deed.

Readers found that, after the application of warm moisture, as I had directed, those hitherto helpless bees were enabled to fly again as well they ever did; while in other cases, where my definite treatment of saturating the bees (short of drowning them), with a warm curative solution, has proved eminently satisfactory.

In my own opinion it is sheer folly to destroy any thing unless it be old quilts or possibly soiled combs—the latter seldom occurring with genuine Isle-of-Wight disease or infectious paralysis. Where soiling has been noticed, it can be only a case of severe dysentery, or this trouble overtaking the sick and degenerate bees. Otherwise the paralysis is often evident with no sign either of accumulations in the intestines nor any unusually distended state of the abdomen.

Even in summer the paralyzed bees are

more numerous after they have been confined by dull weather for a few days, many workers dropping to the ground as soon as a general flight is attempted. The very simple plan of spraying these affected stocks with nothing more than warm water daily, while they are thus confined, would alone save the whole of these otherwise condemned bees; but this does not imply that they would be permanently cured without a suitable medicinal agent. The want of water alone is a very serious detriment to the sick bees, not only when the weather does not permit of flying, but from the first state of infection the bee requires that moisture, although it is becoming too lethargic to make any attempt to secure it.

I had a serious experience with bee paralysis in 1878, and had no difficulty in overcoming it without loss of stock; consequently I do not share that feeling of panic and the hopeless outlook exhibited by the majority of English writers to-day.

CHANGE OF QUEENS.

In my early experience referred to I found great benefit result from the removal of the queen, giving a vigorous young one just laying. This plan must always be considered a great factor in the cure of any bee disease, as I have always pointed out from the issue of my earlier works.

The addition of fresh healthy brood and young bees is almost equally important. Black bees, and also any but young queens of any race, must be condemned where there is any fear of this malady. Some contributors to *GLEANINGS*, perhaps ten years or more back, declared that they disposed of the trouble by collecting and destroying the crawling bees daily, and until they did so there appeared to be no abatement of the disease. This would probably be a sufficient remedy in some localities where Italians were used; but it is one that should be rigorously carried out in all cases of paralysis.

I do not consider that the honey is affected. Combs transferred from diseased hives have been known to transmit the disease, but that does not prove that the honey contains germs of the disease; neither is there any reason for supposing robbers carry home the germs in the stolen sweets rather than by contact with the general contents of the hive they may visit.

As a matter of fact, both hives and combs are readily disinfected without removing or unsealing the honey; and I certainly would not advise any unfortunate owner to expect permanent recovery from any treatment unless he also thoroughly cleanses his hives and fumigates the combs with sulphur, or otherwise disinfects them, as they may be removed free from brood.

Heathfield, England.

[Our correspondent seems to imply that the Isle-of-Wight disease, so called, is nothing more nor less than our old friend the enemy, bee paralysis. When we went over the Macdonald article in our Jan. 15th issue, it was our purpose to attach a footnote

calling attention to the fact that the symptoms of the Isle-of-Wight disease were almost the same as those given for bee paralysis; but the form containing it went to press while we were absent, and consequently the footnote did not appear; but since this article has come in from Mr. Simmins, we are more than ever convinced that the Isle-of-Wight disease is our old friend, bee paralysis. We do not know much about the moisture scheme of cure; but we suggest that some of our friends in this country who have the disease try it out and report.

In this connection it may be interesting to know that the Bureau of Entomology, by the direction of Dr. E. F. Phillips, in Charge of Apiculture, has sent one of its men, Mr. Demuth, to Florida, to study bee paralysis. We are glad to know that Uncle Sam is going to study this hitherto unknown disease. While we do not believe, as we formerly did, that bee paralysis is going to prove serious over the whole country, yet if we could know its real cause we would be in a much better position to handle it.—Ed.]

EUROPEAN FOUL BROOD

Is it Necessary to Kill the Queen or to Melt the Diseased Combs? Shaking Bees on Clean Combs, and Placing Diseased Combs Above an Excluder

BY PERCY ORTON

Mr. V. V. Dexter, North Yakima, Washington, March 1, p. 145, asks for articles on producing extracted honey and keeping bees healthy in yards where foul brood exists. If he means European foul brood or black brood I am willing to give my experience. I wish those California (and all other) beekeepers would give this a trial, and not worry so much. I used to worry; but since discovering how easy it is to rid combs of the disease, and to secure large crops of extracted honey without destroying any combs or killing any queens, I have taken real pleasure in the work.

When foul brood first appeared in my yard I was told to melt up all combs, which I did, including some from colonies which were perfectly healthy. Among them was one colony of Carniolans with an extra amount of healthy brood. I questioned the advisability of doing so; but my informant said it would be safer, for it would be only a short time before all of the others would be diseased. I repeated this same wasteful and useless method until I could not raise money to buy any more foundation to fill the frames.

One day I took 50 Hoffman frames of diseased brood and stacked them over a colony with an excluding zinc between, and left them for a month for what healthy brood there was in them to hatch out before melting. Upon examining them at the end of 30 days I found that they were all cleaned out nicely, the cells being polished like

glass. Unbeknown to our good inspector, I concluded to try to use them again for brood-rearing, and I am happy to say these combs and hundreds of others can be seen in my yard this summer, that were very badly diseased in 1906.

Next I wish to say that European foul brood or black brood does not always injure a queen. Hive No. 37 had a Caucasian queen of the 1908 rearing, which was clipped in 1909. This colony showed black brood developing. The combs were removed, and drawn ones were put in their place. An excluder and hive body were placed on top, the bees and queen from the diseased combs, shaken and run into the lower hive body on the empty drawn combs, and the diseased combs put in the top story. The way I manipulate combs to effect a cure, the queen can not deposit eggs in the combs on account of being unable to pass through the zinc, and the bees have ample time to clean them up in 30 days. If the combs are not wanted elsewhere, they may be left for extracting. In 1910 this same colony, No. 37, was the first one to show any signs of the disease. The queen was found; and, being clipped, I knew she was the one in the hive in 1908. The combs were manipulated in the same way again, and this queen produced bees that gathered over 175 pounds of extracted honey, not allowing for any that went with the cappings.

I have used this plan for the last five years without killing any queens, and have taken as high as 261 pounds from a single colony thus treated. What more can be desired? Why the cruel killing of good queens? Do you think I fear black brood? I would not care if a beekeeper located a lot of bees with European foul brood just over the fence from mine if overstocking did not rob me of the nectar that my bees should gather.

I once saw a picture in GLEANINGS of a group of men who, the editor said, were college-bred men inspecting for disease. I wondered what help they would be to some poor beekeeper who had European foul brood in his hives. Those college-bred inspectors would say, "Mr. Jones, we find your colonies have European foul brood. Now, you shake every one of them on to starters to-night." (The next day about half of them would swarm out from the sudden change from combs of honey to starters, according to my experience.) "And at the end of two days shake them on full sheets of foundation. If it reappears, repeat the same operation until a cure is effected."

Now, is that very encouraging to the man who has about 100 colonies to treat? He can figure on spending \$100 for comb foundation, and have no honey to sell, and his old trouble may break out again. If he should have any extracting combs on hand at the time, the chances are these inspectors would recommend melting them for fear there might be disease in them.

If the Alexander method of treatment, which is the killing of the queen and requeening in 28 days, or mine, by the use of

another set of combs, not killing the queen, but keeping her laying, and the bees gathering a crop of honey, had been urged upon the beekeepers of the land by the bee journals, this European foul brood would not have caused the expense it has to the beekeepers and to the government. This treatment does not tend to increase the sale of queens or comb foundation. Both are good when used at the proper time, but not for the sure cure of European foul brood.

Northampton, N. Y., March 20.

[A sharp distinction should be drawn between European and American foul brood. While it is probably true that under some conditions we can save combs that have been affected with the *European* type of the disease, it is not possible to save those which have been affected with the other type; namely, the American.]

The Orton treatment in some respects is similar to the Alexander method that was exploited so much some three or four years ago. Mr. Orton, in his treatment, uses the same basic idea; namely, keeping the queen away from the combs for a period of thirty days. During this time, the bees clean up the combs, polish out the cells and apparently render them fit for use again. We remember looking through Mr. S. D. House's combs at Camillus, New York, which he said had been rotten with European foul brood some years ago, but at the time of our visit were perfectly clean and contained healthy brood.

We were not aware that either American or European foul brood in any way affected the queen bee. Our correspondent seems to take the view that some authorities hold that the queens themselves are "injured." We have so far seen no proof to that effect. —Ed.]

A CAUTION IN REGARD TO THE AFTER-TREATMENT OF FOUL BROOD

Disease Carried by Combs Reserved from a Previous Year, Although no Suspicious Brood had been Found that Season

BY G. C. GREINER

For the last two or three years, being surrounded by foul brood within a few miles of my place, and expecting a call from the dreaded visitor at any time, I have taken extra pains to read every thing I could find on this subject, to prepare myself for a successful combat whenever occasion should force it upon me.

Well, the disease appeared early last spring; and by the time the white-clover flow opened, the whole apiary, with the exception of a few scattering Italians, was fairly rotten with the disease. During the clover flow, every diseased colony was shaken off on starters, Italian queens were introduced, and the contents of all infected hives burned up.

When the spring had nicely opened, I found myself the possessor of a large lot of

empty hives; and, for reasons that I can not explain, all the last colonies had died from queenlessness. There was not a sign of brood of any kind to be found in any of the combs; and as all of them had been built on full sheets of foundation they were what we would call perfect combs in every respect. Later on in the season, as I had not seen the first suspicious sign of foul brood in 1910, I had no fear of using these combs. I knew well enough that nearly all the new combs built on starters by the shaken-off colonies would be more or less irregular, and I intended to use these good (?) combs to exchange with them and fill out the hives later on. All, or nearly all, the *new* colonies I had reduced to five or six frame capacity, according to the strength of the colony at the time of shaking off, and I considered these combs, in addition to the full sheets of foundation, just the thing to fill out the hives.

With the advancing season, which brought us a fairly good honey-flow or flows (we had clover, buckwheat, and fall flows), the progress in the hives was all that could be expected. The starters were rapidly drawn out, and stocked up with brood by the introduced Italian queens, and nowhere could the reappearance of the disease be noticed. As combs grew larger and brood began to hatch, I deemed it advisable to begin sorting out undesirable combs, especially those that were nearly all drone comb, replacing them either with full sheets of foundation or with some of these reserved combs mentioned above. Whenever the conditions of the different colonies would admit I inserted foundation or combs in the middle of the brood nest or began to remove the division-boards I had used for reducing the hive space, and filled out in the same way.

I hardly need to say that I kept close watch on all growing brood; and just when I began to flatter myself of my achieved victory I received a setback that caused me no little anxiety. Many of those inserted combs showed again signs of disease. To be sure, only a few scattering cells were visible; but the disease was there just the same. However, later in the season all affected brood disappeared again of its own accord. What the outcome will be, whether the trouble will reappear this year or not, is a matter of conjecture. Time will tell.

The foregoing experience shows very forcibly that we can not be too careful in battling with the disease. Although I had a little fear of using these old combs, this was removed by the opinion of our foul-brood inspector. When the latter called at my place last spring we examined these combs very closely; and after I had given him the history of them he did not think it would be dangerous in the least to use them again as I proposed.

I can not say positively that those old combs were infected. The disease might have appeared on perfectly sound combs any way; but as no signs of infection were

noticed on combs the bees had built themselves from starters, nor on any they had drawn out from inserted full sheets of foundation, the appearance leans a little in that direction. If I had to repeat the whole program I would rather err on the right side. I would consign all combs, sound as they may seem, to the furnace, or, as in this case, to the wax-press, and use full sheets of foundation instead. The actual loss, outside of the trouble of making the wax, would not be of sufficient consequence to run the risk of making a failure of the treatment, for the wax so obtained would nearly if not quite pay for the foundation used.

We are advised to render all diseased combs into wax, and thus save at least a little from the destruction. From a financial point of view this may seem plausible; but to handle this rotten mess is a most disagreeable job, to say nothing of the danger connected with the work. All our tools and appliances used in making the wax would necessarily be infected with the germ of the disease; and instead of putting a stop to its ravages we would assist, or be liable to, in spreading the disease. The best, safest, and (in the end) the cheapest way of disposing of all the diseased combs and other contaminated traps is to annihilate them in the quickest and shortest way that will accomplish it. This, from experience, would be my advice.

La Salle, N. Y.

[If there are only a few diseased combs it undoubtedly would be cheaper in the end to burn them; but if there are a good many the loss of the wax amounts to considerable. If the old combs are boiled in plenty of water—not simply brought to a boil, but boiled and stirred, and boiled some more, there is no danger. Such work, if not done in a screened building, should be done at night, and all cans or utensils that came in contact with the comb before it was boiled, or with the honey dripping from them, should be thoroughly cleaned and boiled out. All old boxes, sacks, or baskets holding the comb should be burned.—ED.]

HOW PROPOLIS IS COLLECTED

Some Further Notes on Pollen-collecting

BY F. W. L. SLADEN

Thinking it would be impossible for the bee to pass a gummy substance like propolis through the leg to the corbicula, as it does the pollen (March 15, p. 172), I removed a cover from one of my hives and exposed it in the apiary to the warm sunshine to see what would happen. A bee soon alighted, and, after making several futile attempts, succeeded in detaching with its mandibles a little bit of propolis. Seizing the fragment in its fore legs it dashed it on the left corbicula with the left middle leg, patting it on the corbicula with the metatarsi of this leg. Further fragments were detached, and passed on in

the same way, some being transferred by the left middle leg to the left corbicula, and others by the right middle leg to the right corbicula. It is possible—though the motion was too quick for me to see it—that the fragments were caught by the middle leg on the angle between the tibia and metatarsus, and held by the spur on the tibia.

Thus the bee loads its corbicula with pollen in one way, and with propolis in another way, the former substance being combed into a receiver below the corbicula from the metatarsus of the opposite hind leg, and squeezed out on to the corbicula by the straightening of the leg, and the latter being plastered direct on to the corbicula by the middle leg of the same side. It is possible that the latter process is sometimes used in the case of pollen, and I have seen honeybees patting the pollen that is on the corbicula with the metatarsus of the middle leg. This patting is evidently an essential part of the process of loading the pollen on the corbicula; for when I load a dead bumble-bee's corbicula artificially I find that the pollen stands out and needs to be patted down in order to make it lie on the corbicula as it does in nature.

Hoffer, in *Die Hummeln Steiermarks*, Vol. I., p. 37, states that the bumble-bee brushes the pollen out of the body hairs with the two first pairs of feet into the mouth, and there chews and kneads it with honey and saliva into a sticky paste which is conveyed back again with the feet, and pressed with the help of the middle legs, on to the corbicula of the hind legs; and Crawshaw has lately drawn attention to the fact (which may be easily verified by watching bees working on the many flowers that are now out) that the honeybee often gathers pollen direct from the anthers with the mandibles, which are used to knead it. This kneading of the pollen in the mouth explains the source of the honey in the pollen, and makes it unnecessary to assume that the legs are moistened with honey to make the pollen adhere to them. Nevertheless, from observations I have made I believe that the legs are moistened in some flowers.

Ripplecourt, England.

FORMING NUCLEI OVER STRONG COLONIES FOR QUEEN-REARING

BY ISAAC F. TILLINGHAST

By the modern methods of commercial queen-rearing, fully described in the books on the subject, it is comparatively easy to produce a large number of first-class virgin queens from selected mothers; but it is more of a trick to carry them forward past the period of impregnation and into fully developed motherhood. To accomplish this in quantities greater than is required for home use, some form of nuclei is required.

The system of baby mating-boxes in general use by many breeders has never ap-

pealed strongly to me, mainly on account of the expense and trouble required in getting them started. I much prefer confining myself to the use of standard-size frames which may at any time be transferred to and from my full colonies; and then when through queen-rearing for the season, may either be built up to a size suitable for safe wintering or united and reduced in number as circumstances seem to require.

The best way of making these nuclei that I have ever tried is, first, to tier up as when planning for extracting or for increase by the Alexander plan. If the colony contains a queen which one wishes to breed from, and cells are desired, a complete cutoff of wire cloth or paper is put on the queen-excluder, and left from 24 to 48 hours, when it may be removed. The advantage of a sheet of paper is that the bees themselves will attend to the removal by eating or tearing it away so that they may pass readily from one compartment to the other; but in all cases the queen-excluder must remain in order to confine the old queen below; and if cells are once started they will not be abandoned on account of the removal of the complete barrier.

The colony is then left until the tenth day from the time of division or tiering, when the upper portion is divided into as many two or three frame nuclei as desired, giving each a cell ready to hatch, replacing the wire-cloth cutoff, and after three or four days' confinement giving each an independent entrance and exit, which is usually a $\frac{3}{4}$ -inch hole placed on different sides. These bodies should be carefully prepared with tight division-boards, thus forming separate compartments. Each should contain two frames of brood and one frame of honey. At any time after ten days, when all the brood is sealed, any or all of these nuclei may be transferred each to a full-sized hive body and removed to a new stand, where, by feeding and confining them for a few days, nearly all will remain, and there will be no loss of brood by chilling or lack of nursing, which is sure to take place where removal of unsealed brood is made direct from the parent hive.

Our preference, however, is to leave them on the parent hive, or remove a portion of them to the tops of other strong colonies where they may be benefited by the warmth arising from the bees below. We have but little difficulty in securing fertilization of queens in this way, but find that the wire cloth as well as queen-excluder is necessary in order to make a complete separation.

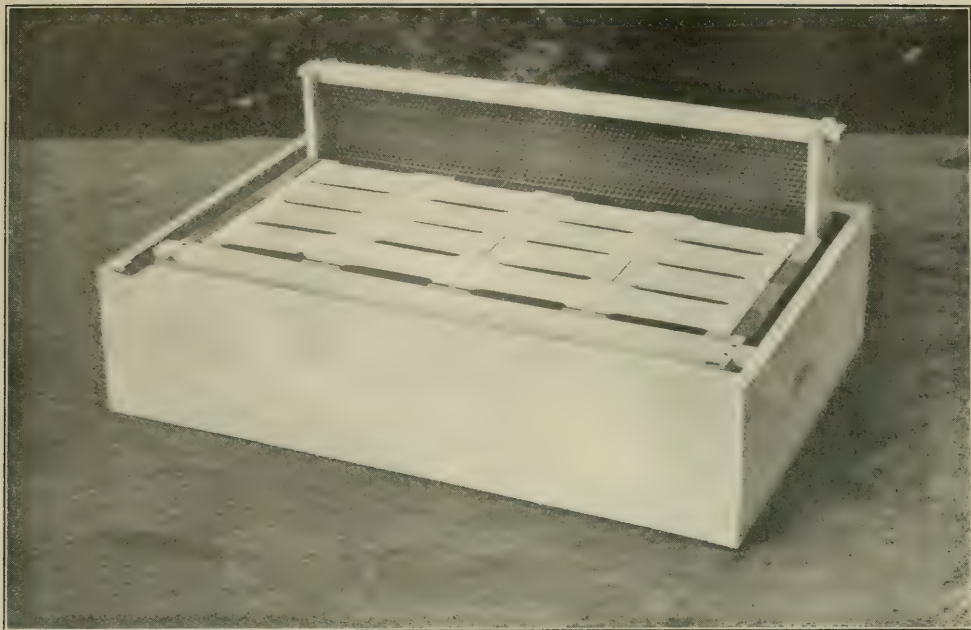
Factoryville, Pa.

Proof of the Value of a Bait Section

I put one full-comb section with perhaps a dozen cells of honey in the center of the super late in the season. When I took that super off, that bait section was filled full and capped white, a fancy filled section, and scarcely another section in that super had been touched.

Lincolnton, Me.

FRED BREWSTER.



T super containing two extracting-frames with wide end-bars, so that they take the same amount of room as a section-holder.

COMB AND EXTRACTED HONEY PRODUCED IN THE SAME SUPER

Is the Production of Comb Honey without Separators Advisable?

BY E. D. TOWNSEND

Mr. E. D. Townsend:—There is one thing in regard to the production of comb and extracted honey in the same super that is not quite clear to me. You have referred to the regular dovetailed super with $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ two-beeway sections and plain separators. Now, then, my supers are all of the above-described style, ten-frame size, with slotted separators. Can I use these in with the shallow frames, or must I have the plain separators?

Again, would it be safe for me to leave out the separators and follower and springs, and space the section-holders and shallow frames equally?

The reason I mention this is that some of my customers complain that the 1 $\frac{1}{2}$ section is too small; i. e., too much box for the honey it contains. What would please me (if I could use it in the regular super) would be the two-inch section; then I could make them hold 1 lb. of honey, or very near it. As before stated, my supers are all regular, of ten-frame size, and, with the separators and follower, hold 28 1 $\frac{1}{2}$ sections. Mr. Mondeng, of Minneapolis, tells me he produces nice marketable sections without separators, and has no difficulty in getting the bees to go into them; but I want the shallow frames.

Elroy, Wis.

CHAS. SHELDON.

I can see no reason why a shallow extracting-frame will not interchange with any section-holder in your ten-frame super. The end-bars of the extracting-frame should be made the same size as the end-bar of the section-holder, and the top and bottom bar but $\frac{3}{8}$ inch wide, so that the comb may be uncapped more easily. The slotted separator ought to work well with this combination.

Good comb honey *can* be produced with-

out separators, but it is not advisable in your case. It is a fine art to produce nice comb honey without separators, and it would take you years to acquire the "knack" of producing honey that would come anywhere near up to the standard of that produced between separators. I have seen a few beekeepers who have acquired this knack, but these were some of the older ones who began before there was much done along the line of separators.

In arranging the super where no separators are used, sections that are partly full of comb from the previous season's use should be grouped together, according to the amount of work that has been done in them. The sections that are nearly full of comb should be put by themselves, and a super filled with them. Those sections that are only partly full or comb should be arranged in supers containing combs of about the same thickness. New sections containing only foundation starters or full sheets, as the case may be, should also be put in supers by themselves. If one were to alternate sections of drawn comb with those having but foundation, the sections containing drawn combs would be drawn out into great thick combs, while those having nothing but foundation would be very thin, some being hardly touched, and therefore not marketable. By keeping each kind of section by itself, as explained above, very good work can be expected without separators.

One of the more important reasons for using separators at the present time is that the finished sections must all be about the same size and finish, as they sell by the

piece, in most cases. Some 15 or 20 years ago grocers weighed out nearly every thing they sold. Sugar, coffee, rice, and spices of all kinds were bought in the bulk and weighed up in any amount that was wanted. The grocer now hands out a fourth or a half pound, all done up in a nice package. With this method of handling goods there is no shrinkage, and the grocers like it, and will handle nothing but package goods, in many cases, on this account. This is the way that comb honey will be handled in the future; and to make this possible, separators must be used in the production of the honey.

As only two springs can be used to advantage with this combined arrangement of the super, the separators between the extracting-comb and the first row of sections ought to be made as thick as possible so as to hold the sections in place near the center.

With two extracting-frames to the super, one at each outside, any one can get the bees to enter the supers readily, if he will follow the very simple rule of putting the supers on at the first opening of the clover, not waiting until it begins to yield honey, as that would be too late.

I admire your desire to please your customers; but I am very sure you have undertaken a hopeless task. No one can please every one, and the better way is to keep near the beaten trail and produce your comb honey in the orthodox section. Your customer who complains of your selling him too much wood with his 14 ounces of honey would likely complain were you to produce sections of honey weighing 16 ounces and charge him a nickel more for it. The thing that would really please this customer would be for you to produce full pounds of honey, then sell it to him, charging him for only the 14 ounces as usual.

I would advise that you continue to use the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ -inch two-beeway section, and separators. Use two extracting-combs in each super, one at each outside. When your honey is ready, crate it in the double-tier or Colorado shipping-case. When ready for the market, quote your price by the case, not by the pound.

Remus, Mich.

WHY IT PAYS TO PAINT HIVES

BY FRANK F. FRANCE

In traveling over the country I have run across whole apiaries of unpainted hives, often close to apiaries owned by adjoining beekeepers in which every hive was painted, and I have not failed to notice the great contrast, both in durability and appearance, between the two. Here in the North, if the hives are not painted, at least occasionally, the moisture that soaks into the wood will cause trouble when freezing and thawing takes place. The illustration shows a hive that has never been painted. The nails are pulled out about an eighth of an inch, and the lumber has sprung apart at the corners.

This would not have happened if the wood had been thoroughly painted in the first place, so that the moisture could not be absorbed. A hive left unpainted in this way for four or five years will require more paint to get it in shape than it is worth; and on this account a little paint well applied at the beginning is worth a whole lot in the end. Neglecting a matter of this kind is to spare the cent and lose the dollar; in other words, it means a new hive just a little quicker. This is a serious matter, for the quality of lumber is slowly deteriorating and the quantity diminishing, so that the price is steadily going higher.

WHAT PAINT TO USE.

By all means use pure paint. Pure linseed oil and pure pigments properly united are always the cheapest in the end. Some department stores sell paint by the mail-order plan; but I have found it is best to deal with the very best standard companies who make paint a business alone, for then one is much more likely to get pure material.



FRANK F. FRANCE, SON OF N. E. FRANCE, PLATTEVILLE, WISCONSIN.

Mr. France spent a year in California to get some experience with the producers of the far West, and now he has returned to his native State to take up beekeeping in earnest. May he have as much success as his father and grandfather!

The most durable pigments are oxide of zinc, white lead, lampblack, yellow ocher, and venetian red. There are many others that are good, but I have found these the most suitable for hives in this locality. I have had opportunity of testing many colors in sign-painting, and in old signs I have found that letters painted with lampblack or white lead show the longest.

The paint most recommended for durability is one coat of pure linseed oil thickened with pure yellow ocher well brushed in, and one coat of oxide of zinc or white lead ground in linseed oil to a good body and well brushed in. What I mean by brushing in is rubbing the paint well into the wood and applying the second coat only when the preceding one is thoroughly dry. Two coats of paint thus applied will last two or three years. Many complain of white lead "chalking." This difficulty would be overcome if more linseed oil were used. Lead beautifies and fills the surface, and the oil holds it there.

Many have asked whether it is practicable to paint the hives while the bees are in them. There is no objection to this; but it is well to add a little drier, such as japan and turpentine, so that, if the paint is put on in the afternoon, it will be dry by the next morning.

Any one who has done any buying of late years can understand why the price of linseed oil, pigments, etc., has advanced. The question of the supply and the purity of the product make these high prices. In many of the States I believe there is a law specifying the purity of linseed oil and turpentine, so that those who sell them dare not label them pure unless they are. I am informed that in one State some of the merchants are selling their oil and turpentine as adulterated, though purchased and sold in good faith as being of the highest quality, simply to protect themselves in case of a possibility of adulteration.

But even at the present prices, good paint is to-day the cheapest commodity we have to buy. Paint is a form of insurance that prevents the slow type of burning known as decay. Painters claim that only 25 per cent of the perishable property of this country is protected by this efficient form of insurance. Shall we not insure our hives?

Platteville, Wis.



A hive which has never been painted, showing how the nails are drawn and the corners permitted to gap apart.

FRAMES WITH BOTTOM-BARS HALF AN INCH THICK

Are Not the Standard Bottom-bars too Thin?

BY FRITZ BOHNE

Some six or seven years ago I made all my brood and extracting frames myself (by hand), and made all the bottom-bars in both brood and extracting frames half an inch thick, and the bottom-bar with an offset or rabbeted end, so that I could nail it both ways by driving a nail through the bottom-bar into the end-bar and one through end-bar into the end of the bottom-bar. This gave the frames more strength. It is almost impossible to break or pull the bottom-bar from a frame made in such a manner.

The main reason I made the bottom-bar half an inch thick was to start the bees to building the comb lower down in the frame—especially in those extracting-frames which were almost entirely filled with comb, and the comb fastened in most instances to both the bottom-bar and the top-bar.

Then with frames having half-inch bottom-bars I did not run the risk of tearing the comb loose from the bottom-bar nor of splitting it in the middle, as would sometimes happen when taking out a frame with a quarter-inch bottom-bar having the comb fastened to bottom-bar.

The half-inch bar does not bend as the quarter-inch bar does when the bees fasten the extracting-frames to the brood frame



Undecided whether to use smoke at the entrance.

with propolis. In the part of Texas in which I live the bees gather a large amount of propolis.

I have all my bees in one apiary, but I can examine them now and find that the hives containing frames of my own make, with half-inch bottom-bars, are almost all filled out with comb which is fastened securely to the bottom-bar, while the hives containing factory-made frames with quarter-inch bottom-bars have the comb coming within half or quarter of an inch of the bottom-bar, and in some instances fastened to it. I do not mention this in a boasting way, but simply in connection with my experience with bees and frame hives.

Has any one made similar observation? If so, I wish to hear about it. I stopped making my own frames, although I know how to handle tools, because I think I can buy frames much more cheaply than I can make them by hand. If frames with half-inch bottom-bars were manufactured I would have no other.

Washington, Texas.

BEEKEEPING IN CINCINNATI, A MILE FROM THE HEART OF THE CITY

BY ALBIN PLATZ

Believing that it may be of interest to the readers of GLEANINGS to learn of the feasibility of keeping bees profitably and without the slightest danger or annoyance to neighbors or passersby in large cities, I venture to write a few lines on the subject, and enclose a couple of photos of my little apiary. My work confining me indoors eight hours and more every day (I am a letter distributor in the Cincinnati postoffice), I looked about for some means of recreation in the open air and sunlight. In beekeeping I found every thing and more that I could have wished for. It is, without doubt, one

of the most fascinating and healthful of recreations. I keep my colonies (seven Italians and one Banat) in the rear of my yard, which measures but 34×126 feet. My home is situated on Mt. Auburn, a thickly populated suburb of Cincinnati, and within one mile of the heart of the city itself.

I have often been asked whether bees are not a nuisance to my neighbors and others. Decidedly they are not, and I have yet to hear of any one being stung by my bees, or annoyed in any way. My little boy, of three years, often plays among the

hives, and even climbs on top of them, and still the bees do not molest him. I have never heard a complaint—in reality, most people are interested in the little creatures, and it often keeps me busy answering questions regarding them.

As regards the amount of honey secured, despite the limited pasturage, my bees do pretty well. Last year was a complete failure, and, moreover, American foul brood was very prevalent in this locality; but in 1910 I started the season with four colonies; increased to 6; secured 300 lbs. of fine extracted honey, and about 25 lbs. more in sealed combs, which I held over the winter. My honey sells readily for 20 cts. per lb., and the demand exceeds by far the supply; so it is very evident that bees are profitable as well as a pleasure.

I am sure the gentle art of apiculture is steadily growing in popularity in this city; for in the last few years quite a few recruits



Apiary of Albin Platz, in the back of a city lot, Cincinnati, Ohio.



Mr. and Mrs. J. B. Mason, of Mechanic Falls, Me.

have been added to the ranks, and I know of several more who are going to start this spring. With the aid of the several good text-books on this subject, and *GLEANINGS*, the heretofore mystery of beekeeping becomes so simple and clear that the most timid and uninformed beginner can soon become adept in the business, and find new pleasures in it year after year.

Cincinnati, Ohio.

BEEKEEPING FOR WOMEN

The Advantage of Being Skilled in the Use of Tools

BY INEZ A. BEALS

Perhaps many who patronize Mr. J. B. Mason, of Mechanic Falls, Me., may not know that Mrs. Mason is so closely associated with her husband's business. I hardly see how he could do without her assistance, since she knows every detail of the work. I am an infant in the bee business myself; but last spring I was in need of some hives and supplies, so I went over to Mechanic Falls. I had heard of the supply house, and wanted to see the different things kept for the bee business. I found Mr. and Mrs. Mason like friends I had known for years. She invited me into her cozy home. Women who are interested in bees are not as plentiful in the East as in the Western States, so I presume she thought I would not care to visit the supply rooms; but I told her at once that this was just what I had come for. So we went out into an open room, the first of which was Mr. Mason's office; thence into a large high room piled high on either side with hives and furnishings (in the flat) of every description. I wondered how a beginner would know which one to choose.

I was much interested as Mrs. Mason sat

down to nail up a double-walled hive. I think it is fine for a woman to be a carpenter; and surely if she is in the bee business she can apply her skill to very profitable advantage. I bought two L. hives complete, and did all the work of nailing them, wiring frames, etc., and I thought it fun. If I had had a good many it would have been just that much more enjoyable.

Mrs. Mason does a great deal of work of this kind, and Mr. Mason knows well her worth. She showed us a stack of hives she had just painted.

We passed on into another room where we saw beeswax, fine and

yellow; also all kinds of tools used by beekeepers. Another room was for the jars.

Two years ago I purchased a fine swarm, as an investment. It paid me well that year. The first thing I did was to hunt up and clip the queen. The hive was boiling over with bees, as it was quite late; but she was superseded, so they came out later only to be put back, for the honey flow was at its height, and I wanted honey instead of bees at that time. A swarm issued later, so I had two colonies to winter. Last spring I purchased another.

I am always very glad when I can read something written by a woman beekeeper, for so few women are in the business. Let us hear from them.

Lewiston, Me.

TRANSFERRING BY MEANS OF THE SIMMONS SWARM-CONTROLLER

BY DR. L. A. SIMMONS

The task of transferring bees from a box hive, nail-keg, or any old substitute generally employed by those who keep a few bees in the country, is one not to be desired when done by old methods in general use. It often becomes necessary for the beekeeper to purchase bees in hives of every description, of neighbors, in order to get them out of the way. Transferring by the use of the swarm-controller converts this unpleasant task into play. The swarm-controller is adjusted to an empty hive body, as seen in Fig. 3, page 139, March 1, on left side. This hive is provided with frames with full sheets of foundation. The hive on the right is supposed to be the box hive containing the bees to be transferred. This hive is to be adjusted to the swarm-controller, so that the bees are compelled to work out through

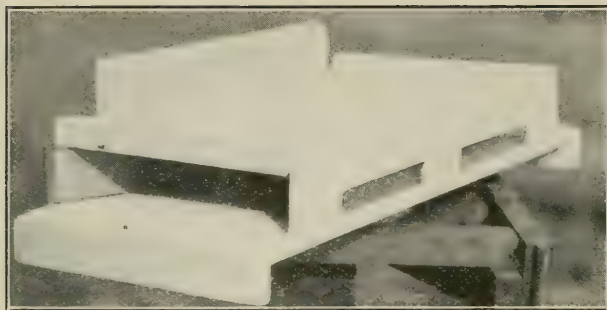


FIG. 6.—Another view of the switching-device by itself.

it, as seen in the cut. The entrance to the hive on the left, containing the foundation, is left open. The rear openings of the controller between the two hives are closed, and the feeder end closed with a shutter. The bees now have access to both hives across the front vestibule of the controller.

Thus arranged they may be left to work and investigate the new combination, and become established in using the new entrance. Transferring should be done when the bees are flying well, but may be done at any time if circumstances demand. If there is a honey-flow, and the bees are well afield, about noon, push in the slide on the right side, seen on top of the swarm-controller, provided with a Porter bee-escape, closing the entrance to the box hive containing the bees. The bees can now leave this hive, but can not return. Returning to the common entrance in the controller they enter the new hive on the left. There will be some commotion for a time on account of the absence of the queen. Two combs of honey and brood can be given in the beginning from some colony that can spare them, and this will very greatly aid in satisfying their discontent. If, however, they are black bees, as they generally are, a laying Italian queen is given in the evening of the first day. When the bee-escape is adjusted, closing the entrance to the old hive, the bees having become established in using the controller entrance, the box hive may now have an entrance or exit made on the side opposite the controller entrance; and all bees leaving this exit will return to the controller entrance

and enter the new hive. A sufficient number of bees should be left in the box hive, however, to nurse the brood. In fourteen days the escape is removed, and in its place a slide of perforated zinc is fixed; then smoke the remaining bees from the top of the box hive, and they will go over to the annex. All the entrances between the two hives, front and rear, should now be open except the perforated zinc, so that the bees may readily retreat from the smoke. The call of their

comrades will draw them over, and the trouble of clearing the old hive of the remnant of young bees is thus greatly facilitated. Do not forget to place a slide of perforated zinc over both openings of the box hive to prevent the old queen from entering the new hive with the young bees. The old queen can now be killed by fumigating. As the box hive is not joined to the controller (simply set against it), it may be set aside some distance while fumigating. It is now returned to its original position against the controller, all slides removed, giving the bees free access to the hive, front and rear. Mutilate the combs by pushing a stick through them, breaking the honey-cells. This will induce the bees in the new hive to transfer the honey in a short time.

The box hive now contains nothing but the empty combs, which should be removed, torn down, and the wax rendered before the worms get into it. After the old queen in the box hive ceases laying, and has been deprived of her bees for a time, she shrinks, becoming smaller in the abdomen; and there is then danger, by the above process, that she may slip through the perforated zinc along with the bees when smoked out, and thus endanger the safety of the valuable queen in the new hive. To obviate this risk, the old queen in the box



FIG. 7.—Storing empty extracting-combs in extra bodies over the "annex."



Sweet clover harvested for seed by a self-binder.

hive may be drummed out in the beginning, with as many bees as convenient, and then killed. The hives are adjusted as above described, and as seen in the illustration on page 309, last issue, and the bees drummed out and dumped at the entrance. All subsequent steps are the same as above described and illustrated.

STORING EMPTY COMBS.

Mention was made of storing frames of honey in the annex, taken from the brood-chamber during a good honey-flow. I would here emphasize the importance of this measure as a means of relieving the congestion of the hive at a time when it aids in controlling the swarming impulse. These combs are not taken from the bees, but they at once divide their forces to care for them in their new location. This division of work depletes the hive of a class of workers that naturally retire to a place of least resistance as they grow old and less fitted for the arduous duties of field work, thus adding another element in swarm control. Fig. 7 illustrates my method of storing empty extracting combs over the annexes after the season is over. The few combs with a little honey in, at the last extracting should be left, and also some partly filled sections, as food for the guards while taking care of these empty combs. These should be scattered through the stacks of supers. So long as the weather is warm enough for the bees to leave the cluster they will be found scattered through the piles of combs, and the combs will be kept free from worms and mold, and perfectly sweet.

In closing these three articles I wish to add that, if this discussion had been written for the veteran beekeeper alone, very

much might have been omitted. In fact, it is only necessary for the veteran to see the cuts and illustrations, and get the principle of the method, to see at once the large field of the device. But these articles were intended to explain fully in plain language merely the chief uses of the controller for the beginner and veteran, and therefore it was necessary to give a detailed description of the various manipulations mentioned.

Auburndale, Fla.

THE HARVESTING OF SWEET CLOVER FOR SEED

The Best Time for Cutting; How to Save All the Seed

BY FRANK COVERDALE

The accompanying illustration shows a field of white sweet clover shocked and dry. We stacked this later, and did not hull it until it had gone through "the sweat;" then it hulled out very nice and clean. If hulled when tough and damp much seed would be left in the straw, and a good deal would also be left unhulled.

The harvesting of sweet-clover seed is very easy, as the self-binder ties it up perfectly and without strain. A big field can be tied and shocked in one day; and when in shock it is safe from all elements that might scatter the seed. If the field is harvested when still somewhat green the straw makes considerable roughage for the cattle and horses; but the seed crop will be lighter and of poorer quality. For this reason we now believe that it is best to let the field stand until well ripened—in fact, just as ripe as

possible without having it shell out. If a field stands well filled with ripe seed, a thunderstorm with a high wind ahead of it may blow much seed to the ground; so it is easy to see that the operator should be on the lookout and get the binder in before such a thing happens. The time to bind it is when the field looks well loaded with black seed with but little green seed showing.

If a field has been cut twice for hay, and then is to be cut for seed, a mower with a buncher will be the best to use. If it can be gathered next morning, while dew is on it, into small cocks that can be handled at one forkful, it will be in shape to haul in to the stack or huller at any time. When dry a canvas should be spread over the rack to catch the scattering seed, and this canvas can be emptied into the stack or huller once in a while. Much fine seed will thus be saved, and the canvas will pay for itself very soon. No one should attempt to haul the seed without a canvas over the rack.

The straw turns water splendidly; and if at all well stacked it will be found nice and dry for winter use for bedding or for live stock to pick over. We formerly cut our seed so green that the straw made fair hay, but have since found out that it pays far better to let the seed ripen more, for the yield will be easily doubled by so doing.

One acre of the field shown in the picture was measured off and hulled alone, and produced 11½ bushels. This, by many bushels, broke all records that I have ever known of as a yield of clover seed, and it was in a season when no one else had any clover on his farm, either for hay or seed. This fact makes the sweet-clover business look good to me.

I have used a Birdsell huller, and it does first-class work with this clover. I have also used a common thrashing-machine, and prefer it to any other outfit, as it gets it out very rapidly, and does the work well. An extra set of concave teeth is put in for this purpose, and these are often used for hulling clover. Our machine men arranged the choppers so as to carry off nearly all the finer choppings behind the machine. This made the work go much faster. It is not difficult to run out 150 to 200 bushels of this seed in one day, and this can easily be hulled for 50 cts. per bushel, and even less if sufficient is grown to keep a machine in the field for a one or two weeks' run.

The thrashing-machine has no recleaner attachment, so the seed has to be recleaned from the machine. We count on having our machinist attach a recleaner, then all will be in first-class shape when done.

We cut our stubble ten inches from the ground, and the stalks sprout and bloom all the fall, and ripen more seed, which falls to the ground to reseed if one wishes to let the field grow up to sweet clover the coming year. We have such fields, and will just let them reseed themselves for hog pastures next summer. The bees are very busy on these fall stubbles until frost. In a few days

the stubble shown in the picture was nearly white with bloom, and indeed it was a pleasant sight to see one great row of bees flying to and from this field all the fall.

Delmar, Iowa.

COURSES IN APICULTURE AT OUR COLLEGES AND UNIVERSITIES

BY E. R. ROOT

More and more our colleges and universities are beginning to recognize bee culture, either by establishing regular courses for the study of bees or by establishing a small apiary where students of entomology and botany may, on the side, study not only the domestic economy of the hive, but learn something about the intimate relations that exist between bees and fruit. The Ohio State University at Columbus, for example, has been having, for a number of years back, lectures on bee culture for the benefit of the students in the short winter agricultural courses. The University has also had practical live-bee demonstrations and field work during the summer.



DR. G. C. CREELMAN.

A college President who is enthusiastic over the Apicultural Department at his institution.

The Massachusetts Agricultural School, as announced in our last issue, on page 21, has regular courses in apiculture under the direction and management of Dr. Burton N. Gates, formerly of the Bureau of Entomology, Washington, D. C. Splendid work has already been done, not only in teaching methods of management but in equipping students so that they become efficient foul-

brood inspectors. What Massachusetts is doing is also being accomplished by the Ontario Agricultural College at Guelph, Can. The apicultural courses are under the direction of Mr. Morley Pettit, lecturer and provincial apiarist. We had the very great pleasure of visiting both schools in apiculture, the one in Massachusetts and the other in Canada. The faculty of both institutions, including their presidents, are much pleased with the work done; and it now looks as if apiculture would become a permanent part of the college work.

But this time we wish to speak particularly of the work done at the Ontario Agricultural College. We asked Mr. Morley Pettit, lecturer and provincial apiarist, to tell something about his apicultural school—not only of the work accomplished, but of the plans for the future. In a letter just received he writes:

We have not an apicultural school as such. Our work is in the direct line of the other work at this college. Roughly speaking, there are three classes or courses at this college—the two-year course, which leads to an associate diploma, the four-year course, which leads to a B. S. A. degree, and a number of short courses on special subjects, lasting a few weeks or months each. Students entering for the two-year and four-year courses all take the same subjects for the first three years; then in the fourth year they choose one of three or four options which are provided by the curriculum.

The work in apiculture consists of twenty-five practical lectures and demonstrations to the first-year students; also a short course was held in May, 1911, and the second shortest course in apiculture ever held here was the one which you attended. A few of the students have shown a preference for this subject, and have asked that an apiculture option be provided in the fourth year; but this provision has not been made as yet. It is probable, however, that the subject will be made a major in one of the other options next year.

The students who are specially interested in apiculture have organized a club which has been quite largely attended. It has been addressed by such practical and scientific men as Messrs. Sibbald, Byer, Miller, of London, Dr. Hewitt, of Ottawa, and others.

My work consists in directing this department, also the inspection work of the province and the co-operative experiments in connection with the Experimental Union. The membership of the Experimental Union is made up of students and ex-students of the C. A. C., and the list of experimenters extends over any who are interested in conducting the experiments sent out, such as testing seeds, grains, vegetables, and the like. In apiculture we send out instructions for testing special methods. The last two years we tested methods for the prevention of natural swarming. This will be continued next year. Remarkably good results have been secured.

In addition to this work I have done a lot of organizing in counties and attending local conventions to encourage beekeeping in the different parts of the province. In fact, my traveling is upward of 10,000 miles a year in Ontario alone.

I consider one of the most important lines to be the special course which we give to students preparing for inspection work. Those who do well in the subject in their first year, and wish to specialize, are placed with practical beekeepers for the summer as assistants, where they secure plenty of experience; then during the next term they are given some special preparation on diseases of bees, and their second and third year vacations are spent inspecting apiaries.

Guelph, Can., March 5.

MORLEY PETTIT.

Any reference to the apicultural school at the Ontario Agricultural College would be incomplete without a mention of its president, Dr. G. C. Creelman, one of the ablest and strongest men we have ever met in any

institution, and we have seen a large number of them in the United States. Dr. Creelman is particularly enthusiastic over the work done in the apicultural school. Indeed, he takes pride in it, as he does in every department of the institution; and during his administration the college has made a most rapid growth. In the year just closed there were in actual attendance in all its courses 1557 students, representing 22 different countries, including several States of the American Union. The staff is composed of more than forty professors, lecturers, and administrators. One of Dr. Creelman's assistants said of him that "he directs the work with a happy manner and ready smile, and with absolute impartiality. It is a pleasure to see him at work, for one feels that he has a grasp of the whole situation, and knows just what is going on everywhere, all the time." This is true, every word of it.

Dr. Creelman is right in the prime of life. The students, individually and collectively, love him, and well they may, for his personality is magnetic and inspiring. What struck us particularly was that there are very few presidents of our agricultural colleges who know more of bee culture and its important relations to general agriculture than Dr. Creelman. In fact, we doubt if there is a college president on the continent who can give a better address on bees. The one we heard was sparkling, entertaining, and instructive—so much so that the students who heard him must either have resolved to keep bees for the honey they produce or to pollinate the fruit trees and clovers; for, be it said, Dr. Creelman is an enthusiastic believer in the value of bees in helping to produce more and better crops on the farm and in the orchard.

Later.—After the foregoing was written we received the following regarding the Massachusetts apicultural school:

The Massachusetts Agricultural College has instituted, in its regular curriculum, instruction in beekeeping. We note with particular interest, marking the beginning of an epoch when beekeeping shall be more generally taught in the United States, that they have erected what we presume to be the first building in the country to be devoted exclusively to apicultural instruction. The beekeeping work is under the direction of Dr. Burton N. Gates, of the Department of Entomology. On the 7th and 8th of February Dr. Gates held a convention of inspectors of apiaries of the eastern United States and Canada. We hope to present in the near future more details of this new movement for advancing apiculture which is centered in Amherst, as well as an account of the inspectors' meeting.

With respect to the admission of students to the college for regular enrollment, beginning with next fall the tuition is free to residents of Massachusetts; yet students coming from without the State will be obliged to pay.

A spring course in apiculture, lasting two weeks, and beginning May 24, will be given. A detailed announcement and program may be obtained from the Director of the extension service, Massachusetts Agricultural College. This is essentially a "cram course" for the laymen; and, while its membership is necessarily limited, any beekeeper from any State is eligible.

And here is still another from Wisconsin:

Following a resolution adopted at the Feb., 1912, convention of the Wisconsin Beekeepers' Associa-

tion, requesting the Wisconsin College of Agriculture to introduce work with bees with an offer of a donation of bees and supplies if such resolution were accepted, the Wisconsin University Board of Regents, about the last week in April, 1912, decided to introduce an elective course in beekeeping. This course will be given by Prof. J. G. Sanders, probably the last half of next year—that is, from about Feb. 15, 1913, to about June 15, 1913. An apiary of about ten or twelve colonies will be owned by the college, and be used by students and for experimental use.

From my acquaintance and work with Prof. Sanders I can state that he is interested in beekeeping, and is especially well fitted for giving work in it.

I drop you this little notice as a bit of news, which, perhaps, you may associate with data concerning college recognition of beekeeping.

Madison, Wis., May 4.

L. V. FRANCE.

THE YELLOW FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL

Owing to the great abundance of buttercups, goldenrods, and sunflowers, yellow is more predominant in the floral landscape of North America than any other color. Yellow may well be our national color, and the goldenrod our national flower. It is the most bright and cheerful of colors, since it reflects the largest quantity of light, and it is doubtless for this reason that yellow flowers enjoy so great a popularity.

Yellow flowers owe their hue to a solid pigment called carotin, familiar to every one in the root of the carrot. It usually occurs in petals in small round granules called plastids. It is insoluble in water, but readily soluble in ether. It invariably accompanies chlorophyll in leaves, and is widely distributed in seaweeds, fungi, lichens, mosses, and ferns, in autumn leaves, and in fruits and seeds. The yellow plastids of flowers are not always round, but are sometimes angular, as in the garden nasturtium. In the tomato, asparagus, thornbush, and in some species of rose, the plastids of the fruit are spindle-shaped, or irregularly shaped, and are fire-red, orange-red, or yellowish red. In yellow leaves the plastids are round; but in autumnal leaves they occur in irregular masses.

The scarlet poppy, tulip, and fire-red canna owe their colors to a mixture of yellow plastids and red cell sap. On the other hand, dingy or dull colors result from a combination of violet sap with yellow granules. In a few flowers and fruits, as the yellow snapdragon, dahlia, and the peel of the lemon, the color is due, not to carotin, but to another yellow pigment (called leaf yellow) dissolved in the cell sap.

Yellow is an old and primitive color, which in its natural state does not vary readily. This may be shown by the following experiment. If the carotin contained in a few slices of the root of the carrot be dissolved out in ether, the yellow solution will not lose its color under ten days, while the green hue of a solution of chlorophyll will disappear in twenty-four hours. But under cultivation sudden variations from yellow to white have been observed. A double yellow hollyhock turned one year into a

single white kind, and a chrysanthemum has been seen to bear both yellow and white flowers. The bright-yellow flowers of the golden currant and the bush honeysuckle in fading change to rose or red; and a species of forget-me-not is at first pale yellow, and changes to sky-blue.

There are 790 yellow flowers in northeastern America which vary greatly in size and form. Usually they are wheel-shaped as in the buttercups and five-fingers; but not infrequently they are very irregular in form, as in the pea and figwort families, where the corolla bears a more or less fancied resemblance to butterflies and the heads of reptiles. As a whole, however, they are much less specialized than red or blue flowers. Irregular yellow flowers probably owe their hue largely to the great persistency of the yellow pigment, carotin.

Both yellow and white flowers are common in primitive families. For instance, in the buttercup family there are 38 yellow and 26 white flowers; in the mustard family, 46 yellow and 54 white; and in the rose family, 39 yellow and 35 white. Since carotin is very widely distributed in the foliage of plants, and petals are only modified leaves, it is not difficult to imagine how the first yellow flowers were developed.

While trees and shrubs with white flowers abound everywhere, as has already been pointed out, trees and shrubs with yellow flowers are comparatively rare. A number of common trees have small yellowish or greenish-yellow flowers, as the rock-maple, striped maple, chestnut, and basswood; while among shrubs there are the barberry, fly honeysuckle, jessamine, and bush honeysuckle; while under cultivation the *For-sythia*, golden currant, and yellow rose are familiar examples. The willows owe their yellow hue to their stamens (they have no perianth), and are, like the basswood and rock-maple, most valuable honey-plants.

Most plants with yellow flowers are herbaceous. When the blossoms are of small size they are usually like small white flowers, grouped with level-topped clusters, as in the mustard, saxifrage, carrot, and thistle families. The most important sources of nectar in this group are the mustard, wild pansy, and goldenrods.

In the pink family, though there are 56 white flowers, there are no indigenous yellow species; and in the aquatic water plants the entire 19 species are white; but, on the other hand, in the St. John's-worts there are 22 yellow and 2 red flowers, while white fails entirely. Yellow is very common among the primroses and night-shades, but rare among the heaths and gentians. Yellow blossoms vary greatly in size, from the large campanulate cups of the squash to the small flowers of the creeping buttercup.

In the aster or thistle family (*Compositæ*) there are 262 yellow flowers and 134 white. Though this is the highest of plant families, the central florets of each head are very small, and the floral leaves have been very

little modified; consequently they retain their primitive hues. In the common field daisy the disc florets number about 500; but in the goldenrod each head consists of from 6 to 15 florets, and conspicuousness is gained by massing immense numbers of them into dense panicles. The goldenrods form a genus of beautiful and stately plants which bloom from midsummer to late fall. Several kinds secrete nectar freely, and are great favorites with the honey-bee. On the Canadian goldenrod 146 different kinds of insects have been observed in search of pollen or nectar. The bright-yellow color of the flowers renders them conspicuous, both by day and evening; and as the temperature of the inflorescence at night is several degrees above the surrounding air, they sometimes serve as a refuge for insects.

And in the evening, everywhere,
Along the roadside, up and down,
I see the golden torches flare,
Like lighted street-lamps in the town.

I think the butterfly and bee,
From distant meadows coming back,
Are quite contented when they see
These lamps along the homeward track.

Among the plants with yellow flowers which are of most value to the beekeeper are the willows, dandelion, basswood (greenish-yellow), barberry, cucumbers, squashes, cotton, mustard, wild sunflowers, and goldenrods. The sensitive pea (*Cassia Chamæcrista*), or partridge pea, Mr. Baldwin says, is abundant in the high pine lands of northern Florida. "In summer the woods are yellow for miles with it, as far as the eye can see."

Waldoboro, Me.

IS THE LANGSTROTH FRAME TOO SHALLOW FOR SUCCESSFUL WINTERING?

BY SAMUEL SIMMINS

Mr. F. P. Clare appears to lay more stress upon the size than the depth of this brood-frame, March 15, p. 179. If it can be proved that the Langstroth is too shallow, then it will be considered that it is too small for the most profitable work. Many frames may contain the same equivalent in square inches, and yet all are not suitable for the best methods of management.

The depth of the puny British standard frame was largely a matter of working with nine-inch lumber. A similar consideration (apart from encouraging bees into badly furnished supers) appears to have ruled the construction and large adoption of the Langstroth frame.

Editor Root seems to have tried for something deeper than the Langstroth; but he states that he was nonplussed by a difficulty in procuring lumber of a suitable width. Thus, again, greater permanent efficiency was sacrificed to mere initial convenience in construction. Mr. Clare also falls back upon this same lumber difficulty.

Why did Dadant discard the Langstroth frame? Think of it! The very man who

extolled and revised Langstroth's book saw that he was losing dollars daily because the Langstroth frame was too shallow. He used them for twenty years, side by side with deeper, larger frames, and finally discarded the Langstroth for the sufficient reason that he wanted to lose no more dollars.

To use Mr. Clare's own expression, "laughable, is it not?" One can imagine Mr. Dadant smiling all over his face when he had finally destroyed those shallow brood-frames, and realized at last that he was going to lose no more dollars over those shallow frames.

Why did another very able beekeeper, Mr. Eddowes, of Jamaica, prefer to use the 16×10 frame rather than the Langstroth? Here are his own words: "My son tried the British standard in the Argentine and the Langstroth in Jamaica, alongside the Conqueror with 16×10 frames, and found them (standard and Langstroth) *nowhere*." The 16×10 frames gave him 330 lbs. per colony, while the shallow frames yielded 150 lbs., and, as he says, "with more trouble to look after the latter." "Laughable, is it not?" that a man should prefer not to lose 100 per cent by working with a frame too shallow.

Mr. Clare appears to have got a bit mixed as regards the population of a double 16×10 brood-chamber, resulting in the production of many useless bees too late to be any good. He is right off the track when he reasons that way. Certainly the double chambers should be filled with brood in the early part of the season.

Thereafter, the workers from such queens will see that there is never a surplus of useless consumers at the finish; and if they are worked for comb honey it will be the owner's fault if more than one brood-chamber is left when supering. The method he employs in utilizing the second chamber for plumping the working stock will gauge his own ingenuity.

Do I know of queens that will fill two 16×10 brood-chambers at the fore part of the season? Yes, friend Clare. I produce no others. Of course no practical beekeeper denies that one of the first essentials for ensuring successful wintering is an abundance of good food. But surely Mr. Clare knows that there are some half-dozen other very necessary conditions equally, if not more, essential.

Editor Root thinks if the writer were more acquainted with general conditions he would not consider the Langstroth frame out of date. Was Mr. Dadant unacquainted with general conditions of apiculture in the United States when he discarded the Langstroth frame, because he was losing hard cash by it daily? Was Mr. Eddowes acquainted with general conditions, with experience in the Argentine and Jamaica, when he found the Langstroth frame could be beaten hollow by another of scarcely more square inches, but so constructed as to give decidedly better results?

Was our mutual friend Editor Root acquainted with general conditions when he

tried to persuade beekeepers to use a deeper and larger frame than the Langstroth, or was there not at the back of his busy brain a practical development that assured him all was not right with the Langstroth frame?

Ultimate and permanent utility has been sacrificed to initial convenience through the supposed difficulty in procuring wider lumber than ten inches. Is this not a delusion? The writer has used only eleven-inch lumber for more than 30 years, and this has come almost wholly from North America, principally from Canada? Of course, it is a mere toss, pitching those logs over here; but it is strange that my friends can not catch a few of them. "A little extra cost!" Oh, yes! but compare that with 20 years greater efficiency.

Heathfield, England.

[The point at issue, apparently, between Mr. Simmins and ourself is that he believes that a large frame is more efficient than a small one, while we contend that efficiency lies in a large colony with the right proportion of fielders and nurse bees. We have tested both large and small frames, have compared hundreds of reports, have traveled all over the United States, and our conclusion is that there is no particular merit in a large frame, but there is merit in large powerful colonies, whether on large or small frames. Mr. R. F. Holtermann, one of the best beekeepers in Canada, has decided there is no advantage in the ten-frame Quinby over the twelve-frame Langstroth—a hive that has practically the same cubic capacity; and while we do not advocate twelve-frame Langstroth hives nor the ten-frame Quinby, we do believe that in the production of extracted honey there are times when neither the Quinby nor the twelve-frame Langstroth will be large enough. Therefore it follows, sometimes, that a good queen will utilize two ten-frame hive bodies of Langstroth depth. When the season closes, the single hive is quite large enough.]

For the production of *comb* honey the ten-frame Quinby or a twelve-frame Langstroth is too large for this country. Our authorities are practically a unit on this proposition. And right here, friend Simmins, do not forget that we said if you were more familiar with general conditions in *this country* you might change your mind. We did not say general conditions the world over, as you quote us. You ask, "Was Editor Root acquainted with general conditions when he tried to persuade beekeepers to use a deeper and larger frame than the Langstroth?" Here, again, you misquote us. We shall appreciate it very much if you will tell us *where* we ever advocated the big frames to the exclusion of all others. As editors of a publication that is going to people of all shades of opinion and diverse conditions so far as locality is concerned, we have put the Quinby frame and the divisible-brood-chamber hive with their shallow frames before the public, and have tried to let the

public decide on their merits. We have never advised the shallow frames to the exclusion of *all other* frames. As we have said of all frames, each has its own special advantages in certain localities. See our catalogs for a statement of the comparative merits of each size and style of frames. As a matter of fact, our experience teaches us, and reports confirm it, that a divisible-brood-chamber hive, on account of the horizontal passageway between two sets of frames, will winter bees better than any other form of brood-chamber; but the everlasting nuisance of handling a lot of little frames has practically driven the divisible brood-chamber out of the market—not because Editor Root advocated or condemned it, but because the beekeeping public has found it wanting. As we said before, the Langstroth frame has held its own everywhere in the United States. We are not contradicting the experiences of the Dadants; but we do believe that an equal capacity of hives and smaller frames would give just as good results.

It would be well to bear in mind that the Dadants are producers of *extracted* honey, or at least were at the time they introduced the Quinby frame into their apiaries. If we are correct, their large following in Europe are largely extracted-honey producers or producers of chunk comb honey. There is no question that the Quinby gives excellent results for the production of such honey; but we doubt very much whether the ten-frame Quinby would do any better than a twelve-frame Langstroth. Indeed, we believe that a sixteen or twenty frame Langstroth hive in two stories, in the production of extracted honey, would excel either.—ED.]

Will it Pay to Cut Down Maples and Plant Basswoods?

Dr. C. C. Miller:—Alongside the roadside of my place I have 40 rods of very large trees of hard maple, soft maple, and catalpa, which I am thinking of cutting out and replacing with basswood. Would you consider the basswood better for bees than any of the above which I now have? I could make good firewood of them, and plant something better for bees. Any information you could give me would be very thankfully received. Do you know where I could buy linden trees? When is the best time to sow white clover?

La Fayette, Ind.

W. H. ROBINSON.

[Dr. Miller replies:]

No other tree that will grow in your region compares with linden (or basswood) as a honey-yielder. However, it depends upon circumstances whether you will lose or gain by substituting lindens for your large maples. I never tasted a sample of maple honey, and probably never will. Yet I count maples of much value to me, since they come early and greatly help brood-rearing. Here's about the size of it: If there are plenty of other maples within a mile or so, and lindens not very plentiful, then you will gain greatly by making the change. If no other maples are in reach of your bees, then you would likely lose by the change. If no other maples are in reach of your bees, then you would likely lose by the change; for when early pasturage is scarce, a pound of honey in April may be worth more than ten in July.

You can get lindens from the American Forestry Co., South Framington, Mass.

White clover may be sown almost any time, as good a time as any being in the spring when farmers in your vicinity sow red clover.

Heads of Grain from Different Fields

Cause of European Foul Brood Unknown.

There was a time when I thought we knew that foul brood was caused by a certain bacillus (*alvei*). Then later *Bacillus milhi* and *Bacillus brandenburgensis* came in for a share, and were accused of being the mischief-makers, and possibly some other bacilli were talked of. I lost track of just what culprit was blamed most. It is a little surprising to me to note that Dr. Phillips, on page 88, Feb. 1, admits we are so at sea as to the bacillus that causes us so much trouble. Of course I realize that there must be several different causes for different diseases, such as European and American foul brood; but it seems to me that those who are familiar with microscope work and making cultures ought to be able to locate the chap and to ascertain the facts.

In the instance given on page 88, the prime swarm of Geo. Stephens may have issued with a virgin queen. There would be nothing strange about it, and I can see no evidence that this did not happen. I can not conceive of weather so unfavorable that a prime swarm could be held back six or eight successive days. It is just as true now as it was years ago, that the prime swarms appear after the first queen-cells are sealed. In practicing the Heddon method of preventing after-swarms, we depend on this.

Naples, N. Y.

F. GREINER.

[Referring to the cause of disease as mentioned by Dr. Phillips, page 88, I may say that the cause of American foul brood has been definitely determined as *Bacillus larvae*; but the cause of European foul brood is not known. While it is difficult to locate the organism, as Dr. Phillips says, of American foul brood, there is no trouble on the part of a bacteriologist or one who knows how to make pure cultures.—ED.]

Reflections on Beekeeping, Past and Present.

The writer remembers with what naive confidence he started in, as a boy, to manufacture honey in a couple of A. I. R.'s chaff hives—the kind he made along in the '80's. The only difficulty he encountered was that the bees refused to enter the section boxes of the upper story with business intent. Well, other work called him, and he was absent for ten years. When he returned, there was a surprising amount of honey stored, and, needless to say, he enjoyed it, notwithstanding the inconvenience of tearing the hives up to get the sweets. So our venture into the realms of apiculture ended in something like disaster, and we have concluded that beekeeping is a rather perilous calling, not to be entered into without considerable prayerful thought, and the genius of common sense.

After a lapse of 25 years we were prepared to find that giant strides had taken place in the art; but what, in reality, has occurred? Merely this: the fraternity had changed to the eight-frame hive, and then changed back again, like the king of France and his ten thousand men. Is there a lack of imagination somewhere?

Well, the erosion of the ages wears away the tooth of time, or something like that. Let us study the virtues of the bee in connection with the faults of mankind; and if humanity must go to the wall, let no guilty man escape. One thing is certain—men will eat honey in whatever form, if they can get it. If Mr. Bee objects to working in section boxes, it is evidently a case of a round peg in a square hole, and we should try hard to give him a square deal or a round hole as the case may be.

Medora, Ind., Oct. 23.

H. B. TURRELL.

Honey Butter; What it is and How it is Sold.

There has been some discussion about honey butter and candied honey in cakes often called by this name. However, as we understand it, honey butter is made from granulated honey and pure butter mixed in the proportion of one pound of butter to three of honey. If thoroughly mixed together, a spread is produced that many like, children especially. The best white-clover honey and the best grade of creamery butter should be used.

This product can be put on the market in a carton the same as butter, or in a wide-mouth glass jar, and sold at the same price as butter. There is

good money in it, for the three pounds of honey at ten cents and the one pound of butter at thirty cents cost only sixty cents, and yet the four pounds of the mixture will bring \$1.20. The price can remain fixed, or it can be varied like the price of butter.

Although honey is a preservative, the mixture will have to be handled as carefully as butter, as it is likely to become rancid and strong just as butter does if neglected.

One good feature about honey butter in winter is that it is always easy to spread. If desired, it can be labeled "Pancake Butter;" but the exact proportion of each ingredient must be stated on the label in order to conform to the pure-food laws.

Owosso, Mich.

NORMAN F. GUTE.

Do Not Apply the Stings to the Particular Joint Affected by Rheumatism.

Will you allow me to caution G. Prentice Carson (and perhaps others who may wish to try stings for rheumatism) against applying the stings upon the parts directly affected, as he suggests on p. 82, Feb. 1. My own experience has taught me that it is better to apply the stings to some other part of the body, and to let the virus work through the system gradually.

Rheumatism attacks me, at intervals several years apart, in the back and legs, and I then take "a course of treatment," applying a sting to each wrist every day for about ten days, after which I am free several years again. I learned of the cure by accident, through handling bees, after having been unsuccessfully treated for several months by a good physician.

In one of my attacks I tried applying the stings to the joint of my right knee, which was giving me a great deal of pain. As a result of that direct application I lay in bed for five weeks, unable to turn over without help. I am a firm believer in the good results to be obtained from the stings, but have never again tried the application to the spot affected. My experience of about 35 years also inclines me to the belief that the effect of a course of treatment disappears in about seven years, the time in which doctors tell us our bodies are renewed.

Frankfort, Kan., Feb. 8.

REV. L. P. HOLMES.

An Experience in Introducing by the Direct Method.

On Oct. 12, 1911, the writer dequeened a colony, and by the direct method ran in a queen which was about six weeks old. She had been kept in a small nucleus, and had been caged for three days prior to the above-mentioned introduction. When looking up the old queen, a queen-cell was found from which a queen had emerged within a few weeks. The queen, when found, proved to be a young one, and laying. The bees were dark hybrids, and very irritable. Robbing started whenever a hive was opened.

The following morning a dark queen—old but apparently not very aged—was thrown out from this colony. The newly introduced queen was found to be quietly at work. What would have happened to her had she been put in by the cage plan?

Providence, R. I.

ARTHUR C. MILLER.

Ten and Eighteen Frame Hives.

We notice that an eight-frame hive is in favor in your country. That size would be of no use here, because it would arouse the swarming propensity, which in out-aparies is such a nuisance. Hives holding from ten to eighteen standard frames are generally used, but the ten-frame hive with a couple of division-boards is really the most useful type of hive. It is usually doubled-walled, back and front, and the dummy boards make it double-walled at the sides. With plinths, and painted three coats, and the roof covered with thin flat galvanized iron over a thick layer of paper, this hive is warm, and absolutely waterproof. We have our own non-swarming system, and rarely have more than one swarm from a hundred colonies. We envy you your succession of honey crops, as you appear to have several harvests of honey in one season. C. CALVERT (Certificated Expert).

Cheltenham, Eng., Feb. 23.

The Beekeeper and his Hired Help.

I have never read any thing in GLEANINGS about hired help; so it may be of interest to some to give my experience. When advertisements appear in the bee journals they often contain a restricting clause something like this: "Users of liquor and tobacco need not apply." This I am pleased to note, for I always did and always shall oppose the use of liquor and tobacco. But to return to the beekeeper who employs an assistant. What does he do? Well, he tries to get out of his help all that he possibly can for the least money, with work every day, on Sundays, and even on the most important holidays. Then he engages some local help, which is easily done when the busy season is not yet at hand, and the work is not so hard and rushing, but when it is very much more interesting.

The employer seems to care little or nothing about the local man's using tobacco, for he puts him to work with the bees, and keeps his regular help at shop work, when he ought to be (according to the agreement) working with the bees and not all shop work. Shop work is all right. It is very nice and pleasant when there is nothing else to do; but working with the bees is by far more enjoyable.

Now about the salary proposition. We agreed on certain wages, including board and room. I had to travel 2000 miles to reach my destination, and all was lovely and well at the start. After the first month or so the employer found that the landlady at whose place his assistants got their daily bread charged too much for board, and accordingly informed his humble servants that they must change to another boarding-place, which we were willing to do. I say *we*, for there were two of us—myself and a fellow worker for the season, both treated alike. Upon finding bedbugs in the new place we both frankly refused to change, as there were enough of the vermin in the former place. Our first landlady was already making war and a desperate battle on the bugs, and succeeded in getting them pretty well exterminated. Bedbugs may be all right for the class of people who never knew what it is to be without them, having been brought up and raised with them, but we didn't happen to have been brought up that way.

Being unwilling to stay at the new place we had to pay the difference in the price of board. Right here I want to say that all beekeepers contemplating engaging future and necessary help had better make preparations before their employees arrive, and thus avoid hard feelings, or else keep their advertisements out of the papers, for some of them don't intend to live up to their agreement in the first place.

Then the likes of two bosses on one bee-ranch sooner or later prove irksome and menacing, and causes continual trouble. Throughout the whole season the boss is tearing hives apart, and his assistants are to take care of them and put them together again. By so doing some severe cases of painful stinging are encountered, which could have been dispensed with by each individual taking care of certain hives alone. In working alone at certain hives one takes more pleasure and interest in the work, and also accomplishes much more in the end.

I am not an amateur at beekeeping, neither am I boasting of myself as a professional in the ever-instructive art of the apiary. I am only giving a brief article on my last year's experience in working on an extensive bee-ranch on a large scale, with about 1000 colonies.

Lake City, Minn.

E. A. KRINKE.

Splicing in Pieces of Worker Comb where Drone Comb is Cut Out.

I am cutting out all the drone comb I can find. Where there are corners or where the lower half is drone, I am cutting that out and taking other worker comb, cutting pieces to fit where the larger cells came out, and filling in with it. It has been my experience that bees will rebuild drone comb if not replaced.

Crestline, Ohio.

M. F. SOULE.

[It has been our experience that if the combs contain any great number of drone cells, they had better be rendered for wax; for even if worker comb is substituted in the space made vacant by the drone comb removed, it will always be a patched up affair and there will be a good many drone cells along the line of intersection of the two pieces. However, if there is only a small amount of the drone comb in the corner say, it undoubtedly pays

to cut it out and put a piece of worker comb in its place. As you say, if you put in no worker comb, the bees are likely to fill in with drone cells.—ED.]

More About the Census Figures in Regard to Beekeeping.

I note what is said, p. 259, May 1, concerning the United States census and bees. I was a census enumerator in 1910; and, while we had no instructions to gather statistics of bees not kept on farms, we were to take statistics of every colony kept on farms. By the census rules, three acres constituted a farm. I think Mr. Coburn is slightly wrong about the necessity of the product amounting to \$400 before the apiary would be considered in statistics.

I agree that the statistics of the bee industry are not reliable, inasmuch as no count was made of bees in towns. However, the same condition holds true of the poultry industry.

Allenville, Mich., May 4,

W. K. PALMER.

Another Reason Why the Census Figures were not Accurate.

I have read the editorial, May 1st, about the last census of bees. Let me tell you how it was taken here, or, rather, *not* taken. My mother, a widow, was at a neighbor's when the census man called there. He asked her to give in her list then, and she told him that she could not give him an accurate list, as we boys ran the farm and he would have to see us about the stock, etc. He never called, and some of us were at home all the time. He told my brother in town it did not matter much, as he always put down what he thought was right. I don't know he knew what was right. At that time I had 110 colonies of bees. He did not know that I kept bees, so none of these were listed. I know of several other small beekeepers who are farmers, who were not asked about their bees. I feel sure that not over 25 per cent of the bees in this (Bath) county were numbered. Is there any wonder why beekeeping has declined (in figures) so long as census-taking is only another pie-counter for the politician.

Sharpburg, Ky.

RAYMOND SMATHER.

Swarm, Swarm, Swarm.

I think I can beat Mr. E. A. Day, page 280, May 1. I had a colony of bees in a log gum which cast a prime swarm April 22. I hived them on one-inch foundation starters, and they began to draw out the cells, but swarmed out and left the next day. A second swarm issued from the parent hive on May 2, but returned without clustering. They issued again May 3 and clustered, but returned before I could hive them. At 8 A.M., May 4, they came out again and clustered. This time I succeeded in getting them into a new hive, but they returned to the old one in less than half an hour. At 11:30, the same morning, they came out again and clustered. I hived them again, and they have been working nicely ever since.

On May 5 a third swarm issued from the parent colony and clustered, but returned in about 20 minutes. May 6 they swarmed out again about 8:30 A.M. and clustered. I was working about a mile and a half from home, so they had to hang on the bush until I came home to dinner. Just as I was preparing to hive them they let go the limb on which they had been all the morning, and left for parts unknown.

Huntsville, Ala.

H. M. WEBSTER.

That Swarm that Did Not Cluster.

In my experience with bees of over sixty years, I have never known a swarm to issue and leave without clustering unless they had previously issued and returned to their parent hive, p. 284, May 1. In this case, sometimes the queen will be unable to fly; and, not returning with the swarm, the bees will issue later with a virgin queen. Such swarms are always very large, as hatching bees are added until the swarm is ready to reissue with a virgin queen. In this case of Mr. Grams the bees no doubt had previously swarmed and returned to the hive, and in the interval had sent out scouts and located that tree.

South Bethlehem, N. Y.

G. J. FLANSBURGH.

[See what A. I. Root has to say on this subject, p. 306, May 15.—ED.]

Our Homes

A. I. ROOT

Charity suffereth long and is kind; . . . doth not behave itself unseemly; . . . seeketh not its own; . . . thinketh no evil; . . . beareth all things; . . . endureth all things.—1. COR. 13 : 4, 5, 7.

You will notice, friends, that our text is right along the line of that extract I made from the *Sunday School Times*, page 287, May 1, in regard to avoiding criticism. Love was the central thought of that extract, and divine love is the central thought of our text. Now the question has come up, and has been discussed, as to how far this great charity or love could be applied to the events of every-day life. There is one thing that should be considered, both in the clipping from the *Sunday School Times* and in the text I have chosen. Where we personally are concerned, and nobody else, the chapter is all right; but where the wrong-doer is injuring somebody else, or community at large, it is our duty to step forward and make trouble—yes, if need be make *war* and *encourage* war. The man who is making counterfeit money should be stopped at once, no matter what trouble it makes to do so, even to the extent of the loss of life; and I hope you will not quarrel with me if I say the liquor-traffic should be regarded in the same light. But for the present I wish to apply the beautiful text to a trip of 48 hours from Bradentown, Fla., to my home here in Medina. Mrs. Root could not stand the hot weather in Florida until May 1 as I had planned. She was so anxious to get back home among the children and grandchildren that she urged me to start as early as April 16.

As we had previously had trouble in securing lower berths for travel, I went to our agent two weeks ahead, and asked him to make application for a berth in the sleeper. He said three or four days ahead of the time would be ample to make sure; but as he had once before disappointed us I urged him to make application about a week ahead of the time. The great bulk of travel back to the North is during April, as you may be aware; and a great many times there is difficulty in securing a berth. I gave him my ticket and told him I would like some document to show that the berth was secured. As we got on the train I went to him for my reservation, when he gave me a copy of a telegram, which, although I did not understand, I supposed to be all right. When we arrived at Jacksonville, however, the agent said my telegram referred to another road, and asked if the agent at Bradentown had my *ticket* when he made application. I assured him he had my ticket in his hand, and looked it over carefully. There was barely a chance to secure an *upper* berth on the train that was almost ready to start. Let me explain here that, although much has been said about going to Florida to escape the grip, they *do* have it in Florida as well as here in the North—sometimes in a

very aggravated form; and this was the case during the past winter. It seemed to be a sort of epidemic that went all through neighborhoods and perhaps towns. Mrs. Root was just recovering from a severe attack; and she said she did not see how she *could* climb away up into the "loft," for we had tried it before under the same or similar circumstances.

Our sleeper was crowded, and nearly if not quite every upper berth was occupied as well as every lower one. As it came time to retire, Mrs. Root said again she did not see how she could get away up there "under the eaves." The porter said there was not any help for it. All the lower berths were secured a long way ahead. Although it is comparatively common, I hesitated about going to an entire stranger and trying to get somebody to consent to make an exchange. I can not remember exactly, but I think my little prayer, "Lord, help," must have welled up as it almost invariably does when I am in trouble.

Let us pause a minute right here. Was it *my* duty to inform the Seaboard Air Line that their agent at Bradentown had *twice* gotten us into that predicament? In accordance with the spirit of our beautiful text, should I have remonstrated, or just let the matter drop? Charitably considered, it is almost impossible to travel without having more or less of these perplexities. While I was meditating a beautiful bright woman (and, by the way, what is there in this world of ours so bright and inspiring as a handsome woman in the full bloom of life and health, showing forth the spirit of the good Samaritan?) came to us and said, "My good friends, the berth below your own was to be occupied by our two little girls. Now, they are young and spry, and can easily get up into the upper berth, and they will not mind making an exchange, especially as you are elderly people."

Two handsome children seconded their mother's offer, and said they would just like the fun of climbing "upstairs;" and pretty soon their father, one of God's noblemen, like his wife, lifted them up into their sleeping compartment with much fun and frolic. We not only thanked our new kind friends, but I, at least, thanked God mentally for such quick and swift deliverance. Now let me explain.

Just as soon as the train started, the porter commenced at one end of the car to make up the berths. As we are elderly people I asked him if he could not skip along to ours, inasmuch as many of the passengers were in no hurry to go to bed. He said he could not. They had got to be taken in their turn. By the way, this porter, although he was a great stout muscular fellow, looked to me as if he was tired out when we started. Perhaps half a dollar would have enabled

him to change his mind; but I am most emphatically opposed to that kind of discrimination. Not only millionaires but men of moderate wealth are accustomed to being put ahead of common people by the aid of their money. I am glad to know there is a strong movement of late to do away with this whole "tipping" business. Well, the porter did not get to our berth until pretty well toward midnight, and Mrs. Root was very tired. Finally, when our berth was ready and the little girls sleeping soundly in the berth above, we were ready to retire. We were down in the region of hot weather, mind you, and the porter objected to more ventilation because the most of them did not want it. You know how Mrs. Root and I sleep—doors and windows wide open, no matter where we are. Just as soon as Mrs. Root got into her berth she said she could not *live* in that hot place—there would *have* to be a window open. After exhausting my strength without avail I applied to the porter. He replied he could not open the window and put in a screen for *anybody* until the berths were all made up. Should I have given him half a dollar, as in the case before? I was undecided, and I was urging Mrs. Root to put up with the bad air until the porter had got the rest "put to bed." She said she would much rather sit up all night than to stay in that hot place without any fresh air. I think my little prayer rang out again (like an alarm clock, as I have told you), "Lord, help!" and help came so swift that I was really startled (as I have been so many times before) at the prompt answer to my prayer for deliverance. A baby's cry diverted the attention of the crowd that was hustling to get to bed and to sleep. If there is any thing in this world that will rouse up Mrs. Root, and bring forward her best qualities, it is a baby's cry. She soon found out that it belonged to a young mother. The young mother was car-sick, and she, like ourselves, had been assigned to an upper berth, as there was no other. Now just listen. I had been trying to *persuade* Mrs. Root, ever since we had been assigned an upper berth, that the air was better, and I could manipulate the ventilators myself, etc. But she stoutly objected. When, however, she found out about the baby belonging to the sick mother, to be put upstairs, when she was already vomiting, our own lower berth was placed at their disposal in an instant; and Mrs. Root smilingly assured the mother she did not mind climbing up at all; in fact, that she was *glad* to make the exchange, which was true. Sometimes a little of that "love" for humanity we have been considering enables us to change our minds and "opinions" very quickly. Our new berth upstairs was about the last one to be made up. We did not get to bed until about midnight. I noticed the passengers had been climbing up without the usual step-ladders. When I asked the porter if there was not a step-ladder to enable Mrs. Root to get above he replied, "Sure; it is

back at the other end of the car. If you want it just go and get it." You see the "half-dollar" came into view *again* just here. I started to go for the step-ladder, but a bright young woman (dear me! what glimpses of sunshine these *handsome* women do occasionally bring to this world of ours!) got past me, tripped to the back end of the car, got hold of the big step-ladder, and came rushing with it up to Mrs. Root, laughing in a roguish way as she did so, because she had "turned *porter*" for the time being. As I noticed her beaming smile, with a little heightened color from the exertion, I thought she was about the handsomest woman I ever saw—*except* Mrs. Root when she was a girl of about the same age. Now lest you criticise too severely that particular porter, listen to what Ernest said when I told him about it:

"Father, don't be too severe on these porters. During the height of travel they are overworked. This fellow had probably been working night and day, and he was tired out to start with, and with that car crammed full of sick babies and sick women he probably had had no chance to sleep much, for several nights past."

When I got into that upper berth I opened the ventilators—I think there were four of them; and everybody else seemed to be too tired and sleepy to object; so Mrs. Root had a very comfortable night's rest after all.

Just as we approached Cincinnati our engine, on account of its great load of passengers, gave out; and instead of making connections so as to reach Medina next morning we were obliged to stay in Cincinnati over night. As the locomotive kept bothering, it was again about midnight before we got into the depot. As a rule I avoid patronizing any hotel that keeps a bar. Two difficulties stood in the way just then, however—the lateness of the hour, and the difficulty *at any hour* of finding a hotel in *Cincinnati* without a bar. As we came out into the street several asked us if we wanted lodging. One of the most gentlemanly-appearing men of the lot took us into a hotel near by—75 cents each for a comfortable room. As we passed through a neat dining-room I asked him how much more for breakfast. He said, "The dining-room is a separate affair. But you can have a lovely breakfast here, as early as you wish, for only 25 cents."*

A little after our usual time we sat down at a very neat table for breakfast. I noticed at once that there were full-sized plate-glass mirrors on each side of the room. The mirrors, being exactly opposite each other, produced the effect of a series of din-

*As we passed into the good-sized bedroom I caught hold of a large window the first thing to raise the sash. As it had evidently been undisturbed for a long time I failed to make it start, and appealed to our host. "Why" said he, "do you want the window open? Is there not a great plenty of air in a big room like this?" I submit this as a sample of the contracted ideas of a great part of the world. No wonder people are dying at such a rate that they keep the doctors busy in studying up names for "new-fangled" diseases.

ing-rooms as far as the eye could see on either side of this room. While Mrs. Root was joking about the "lovely" breakfast for 25 cents, the nice-looking fellow of the night before came and asked what we would have. I replied, "What have you for breakfast?"

He answered, "Any thing you want."

I replied that I would have a beefsteak, and Mrs. Root said that, as she was not very hungry, she would just have some bacon, with potatoes and bread that go with it as a matter of course. I remarked that my steak was rather better than one would expect for 25 cents; and Mrs. Root had some eggs with her bacon, which she did not order. When I came to pay the bill our host said, "Pay at the bar." And then I knew that this fine expensive dining-room belonged to a gilded up-to-date Cincinnati saloon that was just between us and the street. While I was watching the bartender and his assistant pour out drinks, the man of the "lovely breakfast" came up behind us and informed the bartender that our breakfast was \$1.20! Of course, I paid it, but I turned on him, and said, "My dear sir, didn't you say that your 'lovely' breakfast was only 25 cents?"

"That is true, sir; but instead of ordering the regular breakfast you ordered special things, and we served them at the regular price."

Moral.—When you go into a saloon for any purpose whatever, remember the proprietor does not obey either man's laws nor God's, and that you are *sure* to get swindled in some way or other before you get out.

Now, in my hurried narration of the above I have made but little reference to our beautiful text. Let us go back a little. What was my duty, as a Christian man—one who is striving to win souls to Christ every day of his life? Of course, the above is not true when applied to myself; but we will, for the time being, *suppose* it to be true. Should such a person complain of the agent because he attended to his duty so carelessly? Should he complain at headquarters of the porter*—that is, to obey the spirit of this text? And, finally, should he object to the unfair method of the saloon-keeper to get twice the price of a breakfast? In looking back at the matter I believe I did *about* the proper thing; but it may be, after all, I have erred; because if these persons who are remiss in their duties at their important posts receive no reproof nor rebuke, they will probably keep on doing the same thing over and over again. May God help us to choose the golden mean which will include all humanity as our neighbors, and to strive to love our neighbor as ourself.

*In justice to the porters of our various railways, let me say that I have never before found one so uncivil as this one. He was certainly an exception to the general run of his class. I noticed that, as we approached Cincinnati, when he took his brush-broom and went to the passengers one after another, only one man in that car saw fit to accept his services. He did not get the half-dollars he might have had if he had studied our text—"Suffereth long, and is kind."

I for one want to live in such a way that I can pleasantly shake hands with everybody I meet.

Some time ago I heard of a friend who had been educated for the ministry. He was a child of prayer—at least he *said* he was, and his parents spent much time and means in fitting him for his sacred calling. Well, when I saw an advertisement with his name appended, to the effect that *he* was agent for a gold-mine speculation, I wrote to him, remonstrating severely. I protested against the extravagant offers and promises (which he could not *possibly* keep) on his printed gold-mine circular. He thought I was rather severe. Some time afterward I suddenly came across him. I think he was present at a religious conference. I put out my hand to him, and, while looking him pleasantly in the face, said, "Mr. H., I am glad to see you; but I shall be gladder still if you can inform me that you are no longer urging people to invest in gold-mining schemes."

His countenance fell somewhat when he said he was still pushing that questionable work—questionable certainly for a professing Christian. But when he attempted to explain that Christianity and the circular he had been putting out were not antagonistic, I decided I could not give him any more of my time. I had done my duty. "Charity thinketh no evil." If I have been in times past too ready to "think evil" of persons or things, may the Holy Spirit rebuke and enlighten me.

CONSECRATED MILLIONAIRES; DR. CHAPMAN'S EVANGELISTIC WORK ON THE OTHER SIDE OF THE WORLD.

The following letter explains itself:

Mr. A. I. Root:—I am sending by this mail three copies of the *Outlook* containing reports of a mission that is being conducted on this side of the world by some of your countrymen. As you will see, great numbers are being led to Christ. Among them are our own three children. I feel sure, from reading your Home notes, that what is being accomplished here will interest you.

Green Island, N. Z., April 8. ROBT. H. NEILSON.

From the pages of the *Outlook* (published in Dunedin, N. Z.), as explanatory of this great revival I make two clippings. A reporter interviews Dr. Chapman as follows:

What relation had the John H. Converse bequest to the enlarged sphere of your work?

"Mr. John H. Converse, of the Baldwin Locomotive Works, of Philadelphia, was a wealthy Presbyterian layman worth ten million dollars, five millions of which he spent in religious and philanthropic work during his lifetime, and five millions of which he bequeathed to similar objects after his death. The bequest which I am entrusted to administer is to enable me to carry on evangelistic work in different parts of the world, and also to train up and send out suitable evangelists to carry on the same work that I am sent out to do."

Do you believe that, in the preaching of the gospel, is to be found the solvent for all social troubles? "Certainly." Every thing else has been tried and has failed. The preaching of the old-fashioned gospel and the teachings of Jesus Christ will be found sufficient for all the different problems that face us to-day."

May God be praised for such devoted men as John H. Converse. I have long wished

and prayed that some of the millions that often do harm instead of good might be used to spread the gospel. As nearly as I can make out from a hasty review of the copies of the *Outlook*, the conversions run away up into the thousands. Yes, let me say it most emphatically, the preaching of the gospel *will* be found the solvent of all of our political troubles, and it is also (most emphatically) the *only* remedy. While I

dictate, ex-president Roosevelt and President Taft, two men who have enjoyed the highest gift our nation has to bestow, are now engaged in filthy mud-slinging. God grant that our people may awaken from their mistaken lethargy, and decide that (if this continues) *neither* one of these men is wanted as President of a people who are proud to style this the "land of the free and the home of the brave."

POULTRY DEPARTMENT

A. I. ROOT

"LOCKING THE STABLE AFTER THE HORSE IS STOLEN."

On page 322, May 15, I made mention of 28 smart chicks, and said that not one of them had been lost up to the time they were two weeks old. Well, fully half of those 28 were three-fourths-blooded Buttercups. The way it came about, I selected from my flock a dozen laying hens, half Buttercups and half Leghorns, and gave them to my old full-blooded Buttercup rooster; and the 28 chicks were hatched from eggs from these selected half Buttercups. At least half of the 28 were finely marked Buttercups. As their wing feathers grew and showed the spots and the delicate pencillings, I thought that they were handsomer than the most gorgeously painted butterflies. In fact, I thought so much of them that I began to wonder if something would not happen to them while I was off to my northern home. I arranged with a near neighbor to look after the hen and the 28 chicks. They were put into a poultry-house where all openings were covered with poultry-netting; and the chicks were getting to be so lively with their wings that I expected them very soon to occupy little roosts about two feet from the ground. When I left, the chicks with the hen occupied a brooder box that had been out in the weather until some of the boards were getting to be pretty rotten. The day before I left Florida I planned to put inch netting a foot or more in the ground below the sills of this poultry-house, but I did not get at it. Now read the following letter:

Dear Friend Root:—Your letter came Saturday, and I was very glad to hear from you. Miss you? Well, I should say so! The ducks seem to be getting along nicely. They lay three eggs almost every day; two or three days we have gotten only two. Something got after the chicks. I did not know what; but they were so frightened that they did not want to go into the coop at night. I had to pick them up and put them in. Friday morning I found *four dead ones*. One was almost all eaten up, and one was hurt so it could not use one leg. Wife took it into the house and nursed it so it is almost well now. After that I shut them in, as I thought, securely in the little coop. This morning I went out to find them, and *every one was dead*. Almost all had their heads eaten off. Mr. Morgan thinks it is rats. He killed one rat among the ducks.

I shall put out some poison to-night, and see what the result will be. I feel very badly over it—more than if they were my own.

The watermelons are doing nicely, and I will hoe them out in the morning.

Bradentown, Fla., April 28. C. L. HARRISON.

Monday morning.—I got the culprit last night—a skunk. I "locked the barn door after the horse was stolen."

Oh dear me! I wonder if I shall ever learn to protect my chickens so there absolutely can *not* be any such mishap as the above. They had been having bread and milk and boiled eggs, and every thing that could conduce to their thrift. And just think of the time I spent, to get them past the danger period, and then went off and left them so a skunk could dig in the soft sandy ground and get under the sills, and then tear out the boards and mutilate and kill *every last one* of the 28! I have been feeling so sore and conscience-stricken ever since the above letter came to hand that I am seeking relief, and finally it occurred to me that I could get some satisfaction by warning others whose chickens were as yet safe and sound. What a piece of folly it is, any way, to waste feed and time and money, and then let some miserable "rodent" ruin it all! By the way, I was not aware that a skunk would kill a whole flock in that way. Is it not possible that it was the work of a weasel and not that of the skunk that *happened* to get poisoned? Of course no blame at all is to be attached to my good neighbor Mr. Harrison and his wife.

Do you want to know about the ducks I left? Well, here is a letter from Dr. Morgan's boy, scarcely twelve years old:

Mr. A. I. Root:—I thought I would write to you how the ducks are getting along. I get three eggs every day, but once in a while one of them skips a day. The ducks are almost all full grown, except the one small one in the bunch of the fifteen.

Papa got Mr. Raub's incubator and put fifty-two duck eggs in it. The ducks are real tame. Nobody has stolen them. There are still 30 of them.

I have five little ducks. I expect to have more before long.

Bradentown, Fla., May 7. REGINALD MORGAN.

By the way, it is, to me, astonishing that three ducks have kept on, winter and summer, giving three eggs almost every day. Will a flock of 25 or 30 do any thing like it? If nothing serious happens, I propose to answer the question next winter.

While I am about it I want to tell you of another lesson that I learned. I planned to carry 48 laying hens of a cross between Buttercups and Leghorns over to neighbor Abbott's; and as the weather was warm I had a wire-cloth cage made large enough to

take the whole 48. Now, this cage was ample in size, and well ventilated; but I forgot that it was to hold about 200 lbs. weight; and just as four men were lifting it on the wagon the bottom pulled loose. The chickens were all in a heap, tangled in the wire cloth, and some of them were near smothering. I can not quite remember; but I am sure my little prayer, "Lord, help," came up of itself. I managed to get hold of the break, or partly under it, and held it up until it could be slid over on to the wagon-bed. Then we reached down through the top and pulled the chickens one by one out of the snarl. Not one was hurt, and only two got out. When I sent them away, the 48 laying hens were giving close to 40 eggs a day, and I am anxiously waiting for reports from them after they have been carried a couple of miles in the shape I have mentioned.

Now, instead of a moral I think we will have two of them something like this: One-inch-mesh netting costs only two or three cents a square foot. If you want to have "fun and profit" in poultry-keeping, make your precious little chicks *absolutely* safe from midnight prowlers so you can go to sleep at night with a clear conscience. The second moral is, when you wish to put forty or fifty grown-up fowls in one cage, bear in mind that the cage must be strong enough to hold 200 or 300 lbs. weight.

Mrs. Root has just received a letter from Mrs. Harrison in which she says the little chick mentioned by Mr. Harrison has recovered all right; it is one of those beautifully marked Buttercups that I mentioned, so there is *one* left of the flock of 28, after all. She says it is growing finely, and is very tame and docile, and comes up every night of its own accord to be shut up securely so night prowlers can not possibly get it. She also writes us something about the ducks. For some time before I left, one of my largest flocks could scarcely be driven past a certain point in their canal. Thinking it was a queer notion or whim of theirs I would drive them up and almost push them along past that particular spot—see diagram of their canal on page 255. Well, finally, rather than walk past that particular point they would all take wing and fly over it one after another. I still thought it was just a notion, but was delighted to see them spread their gauzy wings and fly so easily, while it takes such a lot of ponderous machinery with great spread of canvas for humanity to "get up into the air." Well, this letter explains why the ducks were so averse to going past that particular spot where the bushy bank extended a little over the water. I quote as follows from her letter: "Mr. Morgan told me the young ducks seemed to be afraid to pass a certain spot in their path to go down into the water. On careful examination he found a nest of water moccasins. He now lets the ducks of all ages go together; in fact, they have grown so they are all nearly of a size."

I confess I have never seen a "water moccasin" in Florida; and as I have never lost

any ducks except those taken by the alligators, I think the ducks were more scared than hurt, and that was the reason why they would not go past their nest.

THE 48 LAYING HENS, AND WHAT THEY ARE DOING IN THE MONTH OF MAY.

Inasmuch as I have reported in regard to the small chicks and the ducks, I think you had better read the following from neighbor Abbott in regard to the 48 half Leghorns and half Buttercups that I left in his care.

Dear Mr. Root:—Your hens are in the pink of condition—a strong, active lot; but they are mixed up so with mine I can't tell you just what they are doing. Eggs are 20 cts.; wheat, \$2.40; corn, \$2.10; oats, out of sight. It would take far more figures to find the profits than to express it. We had a nice crop of potatoes; dug them in 70 days from planting. We are well, and have no trouble with cold feet. We were down the river the other day. A kingfish (that is, a mammoth mackerel), 4 feet and 3 inches long, jumped on shore, high and dry. I will send you a picture when I write again.

Bradentown, Fla., May 17.

D. W. ABBOTT.

HURRAH FOR THE INDIAN RUNNER DUCKS!

TWO EGGS IN ONE DAY, AND AN EGG
APIECE THE NEXT DAY, ETC.

Mr. A. I. Root:—I read with great interest what you write for your magazine. In the last issue, May 15, I notice that you speak of ducks laying two eggs in one day, and one of which is usually a soft-shelled one. Well, I have a few of the Indian Runner ducks, and will tell you some of my experience which may serve to mix up matters a little worse. I had nine breeding ducks and two drakes along a small ditch. They laid the following for a few days: 10, 9, 9, 12, 8. Your opinion is that, when they lay two eggs in one day, they miss the next; but these seem to have gone one better, and laid the following day. In quite a few other cases they have laid 10 per day. On the 9th of May a raccoon killed one duck, and since then one day I got nine eggs.

Here is something I accidentally found: If your ducks are ever reluctant to lay, try this: Take a pail that has had tar in it, and make ducks drink their water from this. It seems to have helped in my case, and I wish you would see if it is good.

Bryan, O., May 21.

CARLTON OPDYCKE.

Why, my good friend, your letter is one of the most "interesting" I ever got hold of. The information that two Indian Runner ducks laid two eggs each in one day, and then an egg apiece the day after, is a wonderful piece of news; and if such reports can be duplicated we may unite in thanking the great Father above for giving us more eggs, better eggs, and for a smaller sum of money, than the world has ever had before. In regard to the "better" eggs, I for one think I would rather have a fresh egg from an Indian Runner duck that has been "corn fed" than any other egg I ever ate.

INFERTILE EGGS; HOW MUCH HAS AN INCUBATOR TO DO WITH IT?

This matter is discussed on page 147, March 1. On page 256, W. C. Ellerin, of the Cyphers Incubator Co., has something to say in regard to the matter. Now, I am pleased to note that so good an authority as L. E. Keyser, of the *Western Poultry Journal*, backs me up as follows:

It is a fact that a good sitting hen will often hatch eggs that will not start in an incubator. I once placed a number of infertile eggs that had been

tested out of an incubator on the third day under a broody hen, thinking to give them to her for a short time only, and see whether she really meant business or not. I did not receive the eggs I intended to place under the hen, and no more attention was paid to her. What was my surprise when, at the end of about three weeks, she came off with three chicks! There were eight eggs in all, and I at once examined those remaining in the nest. Four were still clear and one rotten, showing that it had started to develop.

The above is a stronger corroboration of the superiority of the sitting hen than I had thought of or expected to get. Once more, what have the venders of incubators to say to it? And in order that this may be further tested, can we not have reports from eggs pronounced infertile by the incubator, say in five days, and afterward submitted to a sitting hen? This once more strongly

suggests the idea of starting all the eggs under a sitting hen and letting the incubator finish the hatch. It would not be so very expensive to put all the sitting hens found on a large poultry-farm in a room by themselves; then give these sitting hens, all at one time, enough eggs to fill the incubator, or rather more - say enough to furnish fertile eggs to the capacity of the incubator. If there should happen to be a few more, let one or more of the hens finish them up; and in this way I think we might easily get a hatch of 90 or even 95 per cent, and probably avoid, at least to a great extent, "dead in the shell." As I have said before, this plan is one of the big secrets in the book "Poultry Secrets," from our good friends of the *Farm Journal*.

FLORIDA LAND SPECULATIONS, ETC.

Our readers are well aware that I have been holding up warnings against the schemes of land speculators for years past, or ever since I have made my winter home in Florida. I have again and again urged that no one should think of investing unless he has been on the spot, seen what he is buying, and made inquiries of old residents not having land for sale. Under the circumstances the following brief letter from an old friend of GLEANINGS comes as a surprise, and I confess it was not altogether a pleasant one:

A. I. Root:—In GLEANINGS for April 15 I find in an advertisement these words: "Low-priced lands. Easy terms. Plenty of water. Healthful climate, in the land of Manatee, on west coast of Florida. Net \$500 to \$1000 per acre." For shame! With all your boasted religion and pretense of a clean life, for the paltry amount you get for this advertisement you can stretch your conscience so as to insert this in GLEANINGS. Do you suppose such an advertisement as this would be inserted in the *Rural New-Yorker*? Never. The net amount stated is a bald lie, and is intended to deceive. Why, if people generally could be made to believe that statement, there would not be an uncultivated acre of land (or, rather, *sand*, for that is what it is) in Florida in a year's time. I have been in Florida, and know just what it is. Take the advertisement out.

White Hall, Ill., April 19.

A. W. FOREMAN.

Permit me to thank you, my good friend, for your interest in the good name of your old friend A. I. R., and GLEANINGS also; but were you not a little hasty when you wrote the above? What you quote comes from the advertisement of the Seaboard Air Line Railway Co., and they have been our regular advertisers for years past; and I can not remember that we have ever before received any objection to the way in which they word their advertisement. In fact, I have many times advised inquirers to get and read their literature. The matter has been so much discussed in the pages of GLEANINGS that I will need to go over it only briefly.

As you say, the greater part of Florida is really sand; but if you will visit my Florida home in Manatee Co., I think I can astonish you by showing you what my neighbor Rood, right across the street from our place, is doing and has been doing for years. He

has some excellent land that was formerly a sort of pond. It is now thoroughly underdrained, and also equipped with an artesian well to furnish water in times of drouth. Furthermore, in addition to neighbor Rood's horses used on his forty acres, he keeps quite a few Jersey cows, and sells milk; and he grows his own hay, and I guess the greater part of his feed for cows and horses. Let me say now right here that these Jersey cows are kept mainly, if I am right, for the manure; and his horses and cattle are kept in stables such as we have here in the North. Besides the stable manure, he buys load after load of commercial fertilizer.

You object to the statement in GLEANINGS of \$500 to \$1000 per acre. Well, Mr. Rood, during the past winter, if I remember correctly, received over \$2000 for the celery grown on a single acre. After the celery was off he planted potatoes; and when I came away he had about as handsome a stand of potatoes as I ever saw. The fertilizer put on to grow the celery was all that was needed for the potatoes. They did not have a cent's worth more. The potatoes will soon be dug, and in their place will be put tomatoes or some other crop. He has been getting three big crops off the same ground year after year. And this is not all. Besides his reclaimed swamp he has some poor sandy land on higher ground. I supposed this pine land would not yield enough to pay, even with his skill and experience; but while I have been living there, and could watch operations, he cleared off that high and dry pine land, got out the stumps, worked it up thoroughly, put in tiles, put down an artesian well, and, much to my surprise and astonishment, he has this year taken off almost as good a crop of celery as from his reclaimed swamp. Of course it has cost a lot of money to do it, and it took a man like Mr. Rood to make a success of it. When I asked him what amount of fertilizer he put on that new land to get such a quick response, he replied smilingly that he put on all he could afford to, and then shut his eyes and put on some more. I ask

ed him if it exceeded three tons, costing about \$40.00 a ton. He said he felt sure it would not be so much. But when buyers from the North came and looked over his crop they offered him something like \$1000 for the celery on that poor unpromising piece of land. (See GLEANINGS page 289, May 1st issue.) You say you have been in Florida. You had better go back there, my good friend Foreman, this present year of 1912, and see what is going on. I think there is plenty of land, perhaps, however, not near to market or transportation, as good as Mr. Rood's, that can be bought for from five to ten dollars an acre; but it needs *means* to develop it, and a live man like Mr. Rood to direct matters. Besides what Mr. Rood is doing, and some others like him, there is a general stampede to Manatee Co., as I have told you before. Houses are being built, and roads and cement pavements being constructed in and around

Bradentown, at a rate almost unprecedented.

Finally, whoever sends for the literature sent out by any railroad company building railways through a new and undeveloped region, should, of course, understand that the railway companies present in their literature the *possibilities* of that region rather than the rule.

Perhaps it would be well to say in closing that there are all the time unfortunate individuals who start in to do as Mr. Rood is doing, and who make a failure of it, and some of them declare that there is more money thrown away in Florida trucking than is ever made out of it. But, my good friend, it is true that this same thing is going on all over the North as well as the South. Where one succeeds, there are many more who make failures, especially if they do not have a genuine love for the business aside from its financial possibilities.

Health Notes

BY A. I. ROOT.

"PREVENTION BETTER THAN CURE."

I think it was the *Scientific American* that said, recently, great progress has been made in recent years in preventing sickness, suffering, and death by means of improved sanitation. Many of us can remember when typhoid fever, diphtheria, scarlet fever, smallpox, etc., had to have their run. Sometimes the "run" took a whole neighborhood or a good-sized village, and not only incurred fearful doctor-bills, but sent a lot of people to the cemetery; and the *Scientific American* added that the greatest achievements in medical science were in the way of prevention by better sanitation. Just now there is a great raid being made on flies. I can remember when we could not eat our dinner in peace without slapping flies right and left; and one glorious part of it is, the children are helping. A good many times they are doing the work. I spoke about the wonderful things the *boys and girls* are doing in the way of raising more and better corn; and I said the same thing might be done with potatoes. Well, it is already done, as I see by the agricultural papers.

Now, all intelligent family physicians are telling us everywhere, not only in the cities but in the country towns and villages, how to prevent disease. They are teaching us modern sanitation. I am ashamed to say that, until about two years ago, I thought bathing every Saturday night was sufficient. Now you could scarcely hire me to go back to that way of living. Every inch of my body has a good wetting, and a good rubbing with a dry towel, every day of my life, either in the morning or before I retire, as is most convenient. Well, it is not only the better health I enjoy, but very much cleaner clothing. The wash-woman's task is lessened (down in Florida the dear wife

does all the washing); my light underclothing at the end of the week is often so clean that, if I get it mixed with the new, I can not tell one from the other. The sheets on our bed are never soiled, even if I have been perspiring freely during the day, for in that case I take my bath before retiring. No matter what your occupation is, nor who you are nor how old you are, if you want to be up with the times keep yourself clean by a daily bath. You do not need a bath-tub. If the room is too cold, strip off to the waist, and when you are thoroughly washed so far, put something over your head and shoulders while you finish the rest of your body. With a little practice you can wash yourself thoroughly all over without making any slop where you stand. I forgot to mention in the proper place my nightgown. This, too, is so clean because I am well washed before it is used, that when Saturday night comes I hardly know it has been used. Now, so much for the body. If you are keeping up with the trend of thought, invention, and discovery, you are sleeping outdoors, or with so many doors and windows open (screened, of course), that you are practically out of doors. While I am about it, let me say, help the good wife to keep your living-room as clean as your body by being very careful to clean your feet whenever you come in to dinner or for any other reason. Wear some sort of overshoes when obliged to go out on ground that might stick to your feet. And, finally, be careful about the cellar. The Cyphers people, in their directions for making and using an incubator cellar, say that the walls and floor should be scrubbed thoroughly every few days, or mold will accumulate that will mean death to the chicks inside of the egg. The cellar should be damp, and this dampness is congenial to the

growth of mold and of injurious bacteria. Have it so made that you can let in some sunlight a part of the day, and then give it a frequent sweeping or scrubbing two or three times during a hatch. Now, if this is good for the chickens, it is also good for humanity; and the Master said, you know, "Ye are of more value than many sparrows." For the sake of the dear ones who live in the rooms above, and for the sake of preventing epidemic and contagious diseases that might harm your neighborhood, keep your cellar as pure and wholesome as you do your body and your dining-room. I am sure the good wife will warmly second your efforts.

If apples or potatoes or other vegetables are rotting in your cellar, overhaul them and remove the decayed ones certainly once a week. I sort over my eating apples every 48 hours; and late in the spring, when the old apples begin to rot badly, I sort them over every day, using every apple just as soon as it shows the *first symptom* of decay. In that way I always have nice ripe mellow apples, and there is almost no loss; and when apples are from 50 cts. to \$1.00 a peck it does not pay to let them spoil.

Now let your wife read this little health talk; and may be it would be a good idea to show it to your neighbors. Tell them I am starting out to be a hundred years old; and I should like to have every (good) man and woman who lives, and all fellowmen, join in with the Century Band. At present our good friend T. B. Terry will make a very good leader.

HYDROPHOBIA, ETC.

Mr. A. I. Root:—I have just read your article, p. 771, Dec. 15, on hydrophobia. I want to thank you, and congratulate you for giving space and publishing that timely article. I only hope that every beekeeper and farmer, as well as dog-fancier, could read your words on a subject that demands our attention. I am going to do all I can here to get the taxes raised on dogs, and a law to compel dog-owners to muzzle their dogs. The loss of human life and valuable domestic farm animals can never be balanced with a pack of worthless dogs.

Just a few days ago I lost an animal in the way of a fine mule—one that \$250 could not buy. The mule, a faithful trusty servant of our household, was bitten in the nostrils by a stray worthless cur that was not worth the powder and lead that were shot at him. Just 34 days from the time the mule was bitten it died in convulsions. Its sufferings were something terrible; and, to make it all the more so, we could do nothing to relieve its suffering, as one convulsion followed another in rapid succession until death relieved it. It suffered somewhere near three hours before death came.

Mr. Root, as soon as I read your article in GLEANINGS I simply had to write you this letter.

SAMUEL M. ANGEL.

Evansville, Ind., Dec. 26.

THE OTTAWA "LUCKY STONE," ETC.

I had fondly hoped that the days were past when people would put their faith in something carried in the pocket to bring "good luck." But just now I am pained to get a lot of printed matter with the heading above. These lucky stones are for sale, of course; and there is a lot of "testimonials" to prove that, if you have this thing in your pocket, all your investments and speculations will turn out profitably. I suppose

that, if you should buy a lottery ticket, it would draw a prize every time, if you are a possessor of that lucky stone. Now, it is a disgrace to the present age, and a slur on the postal department, to permit such things to be carried in the mails, and I am going to carry the matter to the Postoffice Department authorities. In running over some of the testimonials I was wondering what it was that sounded so strangely familiar; and then I recalled that the testimonials in regard to Electropoise and Oxydonor were almost parallel. I wonder if the postal department will also decide that it is not their province to interfere with using the mails for traffic in these lucky stones. The vendors even have the cheek to drag in the names of Lincoln, Grant, Edison, Carnegie, etc.

Just now the price is only the insignificant sum of \$1.00; but owing to the "immense demand" they say the price will soon be boosted up to \$10.00 each.

BIG POTATOES, ETC.

Mr. Root:—I want to ask you if the A B C of Potato Culture says that all potatoes will be big enough if they go only 40 to the bushel for the biggest ones. If so, we got you beat a mile. We grow potatoes as big as 3 lbs., and don't think much about it, although that would make only 20 potatoes to the bushel.

Comfrey, Minn., May 15. C. G. GABRIELSON.

My good friend, the potato book does not make mention of potatoes larger than 40 to a heaping bushel. No doubt we *can* grow them larger if we undertake to do it. But let me tell you of something that happened. My neighbor, James Hilbert, in Northern Michigan, grew, I think, about 1000 bushels that he *could not sell* because they were so large that nobody wanted them. They were Carman No. 3. I told him, when he planted them the usual distance on his extra-good ground, that he would have trouble by having too many of his potatoes too large for market; and I suggested that he should plant them close, and use large pieces for seed so as to make the potatoes small. I think their usual rule up there is 3 ft. apart both ways. The potato book recommends, as you will notice, very much closer planting than this, in order to avoid getting potatoes that weigh 3 lbs. I suppose this present spring of 1912 big potatoes or little potatoes or any other kind will sell without any trouble, and bring a big price at that.

FROM AN 85-YEAR-OLD FRIEND

You did send me one of your catalogs, but I am no more able to tend to bees. I am going on 85 years, but I appreciate very much your sending me that. All I want to know is if, A. I. Root is alive yet. He was one of my best friends. I did deal for many dollars' worth of goods with him. He was an honest man. I am a veteran of the civil war. I was raised in Ohio, in Stark county. I am a Frenchman. Please take a little pains and let me know about Mr. A. I. Root.

Parkville, Mo.

ED LANFELIN.

[My good friend, we are glad to tell you that A. I. R. is just now very much alive, and, through God's providence, he hopes to live to be as old as you are. We send you some of our back numbers in order to let you know how your old friend is busying himself during this year of 1912.]

Gleanings in Bee Culture

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Editorial

DEATH OF DR. JOHN S. HOWKINS.

DR. JOHN S. HOWKINS, one of the prominent beekeepers of Savannah, Georgia, and for a number of years connected with the beekeepers' supply business under the firm name of Howkins & Rush, at Savannah, died recently. Mr. Howkins was a man who stood high in his profession, was a man of personal magnetism, and had hundreds of friends in Savannah who loved him for his warm, true-hearted nature.

THE BULLETIN ON SWEET CLOVER.

WE are informed that Bulletin 98, Bureau of Entomology, entitled Historical Notes on the Causes of Bee Diseases, and Bulletin 485, from the Department of Agriculture, on the subject of sweet clover, are not for free distribution. Five cents is the price of the former, and ten for the latter. But they are well worth the price—especially the bulletin on sweet clover, which every beekeeper should secure before the supply is exhausted.

100 LBS. OF SECTION HONEY BEFORE MAY 28.

THE following letter received from one of our subscribers will explain:

On May 2, 1912, I had two swarms that clustered together. On May 28 this colony gave me 100 lbs. of fancy section honey. Is that not a good yield for Virginia?

Petersburg, Va.

W. E. FERRELL.

While this, perhaps, is not "breaking the record" by any means, it goes to show that the conditions are going to be right for a honey-flow this year. Reports are looking good for a good old-fashioned flow, where there are bees to gather it.

GLEANINGS UP TO DATE.

PERHAPS our discriminating readers will observe that this issue is printed on a new face of type. More exactly, every issue of this journal from now on will be printed on an entirely new face. Our new \$4000 linotype, which we purchased last December, has been kept busy at work on various pub-

lications sent out by the GLEANINGS publishing house; and it was not until this issue that we were able to catch up enough so that our journal could be set on the machine. Machine composition will, therefore, be used hereafter in our printing rooms. One person is now able to do practically as much work as four or five compositors.

GLEANINGS is being set up and printed on the most up-to-date machinery that it is possible to produce. We are using the most modern appliances for making our photos and engravings, including the very latest new patented "overlay" by which the halftone cuts come out brilliant and clear.

IS THE SPRAYING OF FRUIT TREES WHILE IN BLOOM NECESSARILY INJURIOUS TO EITHER BEES OR BROOD?

SOME question has been raised in this country whether the spraying of fruit-trees while they are in bloom is damaging to the beekeeper, as has been commonly believed. We have always supposed (basing our opinions on reports from all over the country) that such spraying was injurious, particularly because thousands of dead bees have been reported at the entrances of hives in localities at just the time the trees are sprayed when in bloom, and because brood is found dead at about this time. But there are some authorities, however, who believe that the dead brood in most if not all of these cases is due to foul brood rather than to poison. But foul brood does not account for dead bees in front of the entrances; and particularly does it not account for a rapid decimation of the strength of the colony while the trees are in bloom.

We are always willing, however, to give the other side of any question; and from the *Agricultural Gazette*, of New South Wales, for April 2, we learn that Messrs. E. E. Prescott, Principal of the Horticultural School at Burnley, and F. R. Beuhne, a

beekeeper well known to our readers, conducted some experiments to ascertain whether the spraying of fruit trees with poisonous mixtures while in bloom had any effect on either the bees or the brood. The result of their experiments is summarized as follows:

At the Burnley apiary, the beehives are right under the fruit-trees, and at the time of spraying with Bordeaux mixture the ground had not yet been plowed, so that the spray fell not only on any fruit blossoms that were open, but also on the Cape weed then abundantly in bloom.

Neither the spraying with Bordeaux mixture nor the subsequent one with arsenate of lead had any effect whatever upon the bees, the colonies developing normally, and without any checks. There was not at any time dead brood in the hives. There is no doubt that under the atmospheric conditions prevailing at the time the spraying of the trees proved quite harmless to the bees. Observations will, however, be continued in future, to demonstrate whether spraying is injurious to bees at all; or if so, under what conditions.

ROBBER CAGES.

On page 383 of our Heads of Grain department in this issue is an illustration of a portable robber cage mounted on wheels to set over a hive. Practically the same thing without the wheels, and much smaller, or just large enough, to set over an ordinary hive, we find a very serviceable thing to have in the apiary. The advantage of the smaller size is less weight with corresponding greater portability. In the cage shown on p. 383 the operator can be caged with the hive of bees.

We use also a robber cage (large enough for operator and hive) that is very light. It has a cross rail or handles on each side, and a convenient screen door. One can step inside, lift the cage up by its cross-rails, walk over to the hive that needs attention, and set it down.

In our judgment, wheels only add to the weight and to the inconvenience of getting such a cage from one part of the apiary to the other. Our large cages for setting over the hives are made of strips of basswood $\frac{7}{8}$ inch square, and do not weigh over 5 lbs.

WILL IT BE AN OLD-FASHIONED HONEY YEAR?

INDICATIONS in our locality (and we hope it is a fair criterion of what it will be in other clover districts of the North) point to an old-fashioned honey year. While there is, perhaps, not as much white clover out as we have some years, yet what we do have seems to be yielding nectar. Both red and alsike clover are very abundant in our locality, and the growth is luxuriant. Apparently the severe winter did not hurt either very much if at all; and that reminds us that years ago, when we used to have a yield of clover honey every year, we had cold winters. Is it possible that a cold

snappy winter like we have just had causes nectar to be secreted more readily the following summer? In the language of Dr. Miller, we don't know.

Another thing that is encouraging is that basswoods look more promising than they have before in a decade. While the indications are for a good honey-flow, we fear that not every one else will be as well favored with bees as ourselves.

In the mean time there are some reports from California that look rather encouraging. How reliable our information may be we do not know; but several clippings have been sent us that would indicate that there will be 500 carloads of honey in California. We do know this — that many carloads of bees are being sent from the bordering States into California to catch the flow after which they will be sent back to their respective States.

Our representative in Texas wrote us a short time ago, saying that he thought the crop in his State was going to be light. While the early indications were good, the flow did not materialize. We hope it will not turn out this way in our northern States.

THE CAUSE OF EUROPEAN FOUL BROOD.

It will be remembered that Dr. G. F. White, of the Bureau of Entomology, Expert in Bacteriology, and working under the direction of Dr. E. F. Phillips, Apicultural Expert, has been investigating the causes of bee diseases for several years back. After devoting something like a year or more to the special study of American foul brood he definitely located the bacillus responsible for that disease; namely, *Bacillus larvae*. He proved beyond any question that *Bacillus alvei*, supposed to be the cause in former days, had nothing to do with it. But he did find *Bacillus alvei* in samples of European foul brood. It seems that he has been working upon this type of the disease for the last two years; and while he will not as yet make any positive statement it would seem to us that he has come pretty near locating it. He finds among other microbes in the dead brood from the European foul brood, *Bacillus alvei* and *Streptococcus apis*. He also found the old *Bacillus Y*, which he discovered some time ago, and which he at the time suspected might be the cause of European foul brood; but before he could get more evidence he came to no conclusion.

Circular No. 157, by Dr. White, just out, gives some interesting information. Among other bacilli he finds *Bacillus Y*, or *Bacillus pluton*, as he now designates it, and under

conditions that would seem to show to the average layman at least that this bacillus is responsible for the real European foul brood. He has proved beyond any question that the other bacilli mentioned, when fed from pure cultures to healthy brood, do not cause any disease, although they may or may not be present. The *Bacillus plution*, however, is discovered at the very beginning or the first symptoms of the disease, and continues clear on through. Later on, as the disease develops, *Bacillus alvei* and *Streptococcus apis* develop. Whether they have a tendency to modify the form of the disease is not quite clear; but from all the evidence presented it would look as if Dr. White had found the real cause of European foul brood, although he does not definitely claim it even yet. It has taken a long time to do it; but it has been worth while.

Copies of this bulletin can be obtained by applying to the Superintendent of Documents, Government Printing Office, Washington, D. C., enclosing five cents. Stamps will not be accepted.

THE CHEMICAL ANALYSIS AND COMPOSITION OF IMPORTED HONEY FROM CUBA, MEXICO, AND HAITI.

THE foregoing is the title of Bulletin 154, from the Bureau of Chemistry, by A. Hugh Bryan, Chief of the Sugar Laboratory. It is well known that honeys vary slightly, owing to different climatic conditions in localities from which they are gathered. As various honeys are being imported into the United States, it is important to know their exact chemical composition, for comparison with certain other honeys that might be imported, or which are alleged to be imported, but really are an adulterated honey pretending to be what it is not. The results of the examination of honeys from Cuba, Mexico, and Haiti show a "slightly greater moisture content and a somewhat lower percentage of sucrose." Otherwise there is no pronounced difference.

Further particulars can be secured by applying for a copy of this bulletin to the Superintendent of Documents, Washington. It is not stated whether there is any charge for this, but probably it is about five cents. Do not send stamps, as the governmental departments can not use them.

THAT SECOND CARLOAD OF BEES FROM FLORIDA.

THE second car arrived at Medina, with our man in charge, June 1, in record-breaking time, being only five days from the time

of starting from Patrick's Landing, Florida, till it reached Medina, covering a distance of 100 miles by water and 1000 by rail. As in the former case, Mr. Marchant stayed with the bees in a cattle-car night and day, for the bees required almost constant attention. It was necessary to give them water, and keep them sheltered from the direct rays of the sun when at stops. The previous shipment of bees took eight days: this one just in, five days. This difference is due, first, to a shorter route; and, second, to a better knowledge of how to handle railroad men.

The second lot of bees did not come to us in quite as good order as the first, however. The first carload was made up of 500 three-frame nuclei. The second car contained 248 ten-frame colonies, screened top and bottom. In some cases there was a quart or more of dead bees on the bottom of the screens, but in most cases practically none.

Both shipments proved beyond a question the importance of having a man along with the bees, and not only in the same train but in the same car. When weather conditions are fair, a man can travel with a fair degree of comfort. The first carload of bees started when the weather was extremely hot, and landed here in a snowstorm with a temperature nearly down to freezing. The second shipment had extremely hot weather all the way; and this, we think, accounts in part for the larger loss of bees; for on the previous shipment there were almost no dead bees.

Another lesson we have learned is the importance of shipping bees (for so great a distance) in *smaller* packages. A full-sized ten-frame colony will not stand a long shipment as well as a fair-sized three-frame nucleus. It sometimes happens that one lot of bees are more nervous than another. The larger the unit of shipment, the larger will be the relative loss, for the reason that a small lot of bees can not stir up a whole colony. It was noticed that, with both nuclei and full colonies, some of either would be roaring as if in a terrible state of excitement. Wetting them down would aggravate the roar for a moment, when they would quiet down. Excited bees always require more air; and it is such bees, like nervous horses, that wear themselves out long before they get to the end of their journey; hence the importance of a man with a sprinkling can.

This carload of bees is now being distributed around at outyards. From present indications they will gather enough honey to pay the freight; and possibly, if we should have a good shower of honey, their entire cost.

Stray Straws

DR. C. C. MILLER, Marengo Ill.

FRANK E. MILLEN, if you feed sugar to fill the brood-chamber, as suggested on p. 316, please have the first super honey analyzed to see if sugar is in it.

NEARLY 4000 virgins were sent to the 36 mating stations in Switzerland last year, and 87 per cent of them were returned mated.—*Schweiz. Bztg.*, 484. [Some of this might be practiced to good advantage in this country.—ED.]

D. M. MACDONALD, *British B. J.*, p. 103, says spreading brood "is a pitfall — a plunge into which is accompanied with ruinous consequences when practiced by the novice . . . ; even the old hand, for his own good, should be advised to resort to it but seldom." I have some question whether there is *ever* any gain by it.

BERNARD RIETSCHKE, who died lately, had already (in 1896) sent out into Germany and other lands 10,000 comb-foundation presses, and since then the number doubtless has more than doubled. Your thrifty German doesn't like to buy what he can make himself. More than that, German beekeepers are not blest as we are in being able always to buy foundation with the secure feeling that there is no such thing as adulterated foundation upon the market.

ALL LIFE, says John H. Lovell, p. 268, depends upon the existence of leaf-green, or chlorophyll. If I had known that some years ago it would have saved me some trouble. Madame Salleron is a geranium with ornamental foliage, some leaves green, some white. I wanted a plant all white; tried to root branches with all white leaves. All died without rooting. Then I thought I'd make a sure thing by taking rooted plants and cutting out all green leaves. Every plant died. Couldn't live without the green.

I'M GLAD, J. L. Byer, to see you object to using "hybrid" in place of "cross-bred," p. 264. I wasn't on the carpet when it came into use, so had no chance to protest. But I'll stop using it if you will. But you're 'way off in thinking I'll ever be reconciled to "shook swarming." That's such a vicious violation of grammar that it will always cause a shudder except among those people so illiterate as to say "I was took down with fevernager and was nearly shook to pieces." [While the use of the word "hybrid" is not scientifically accurate, because it is not a crossing of species but a crossing of *races*,

it has become established in all our literature. It would be almost impossible to change it now. We say, in common language, the sun rises, when we know that it does not rise. As a matter of fact, we are doing the rising, because our part of the globe is coming to a point in its revolution where all can see the sun. No, we believe it is better for us to continue using the old term—particularly so as it is shorter than "cross-bred," which is more accurate.

GLEANINGS has always held, I think, that if sugar is fed in the brood-chamber there is danger it might later go into supers; but I don't know that there was ever any positive proof. A careful experiment is reported in *Schweiz. Bztg.*, 149, April 6; to one colony invert sugar was fed; to another, cane sugar, each containing a minute quantity of lithium chloride. April 19 the flow began, and the honey-apartments were opened. May 4 samples of surplus from each showed the presence of lithium, and no lithium in the surplus of a neighboring colony. Clearly it is wrong to feed sugar shortly before giving supers. [We have based our opinion and advice in this matter on the testimony of a number of practical beekeepers. One of the most conclusive, as we now remember it, was the case of a correspondent who fed very dark buckwheat honey just before the clover flow. What was his surprise to find that the sections over the colonies fed with buckwheat contained a good deal of dark honey; while colonies not so fed had white section honey. There was so much testimony along these lines, that we believe late sugar feeding should be discouraged. While sugar syrup in section honey would not affect the quality of the best section honey, yet when such goods are put on the market they are likely to subject the seller or producer to the penalties for selling adulterated goods. It is true a very small proportion of sugar syrup might not be detected by the chemist, but a larger amount would. Moreover, we do not believe there is any advantage in late feeding except to prevent actual starvation and the cheeking of brood-rearing. There is no harm in late feeding in any case providing the bees are not fed too much. This whole question was thrashed out when the Boardman plan of feeding sugar syrup clear up to the harvest was advocated some years ago. There are some seasons when the *expert* can practice such feeding without getting sugar syrup into sections.—ED.]

SIFTINGS

J. F. CRANE, Middlebury, Vt.

It seems as though I never knew a spring when bees spread their brood so fast, considering the weather.

The March 15th issue of GLEANINGS ought to be placed in the hands of every fruit-grower in the United States.

Friend Scholl keeps hammering away at "bulk honey." The argument advanced that more can be sold near home in this way is quite true, and of immense value when there is a large crop to be worked off.

Mr. Doolittle's ideas as to what constitutes a well-to-do man are perhaps of more value than any thing else in the number of GLEANINGS for Feb. 15. They will do to carry with us for meditation in our leisure hours.

It is bad enough for a busy man to get letters asking for information without even enclosing a stamp to pay for the postage; but when one gets a letter asking for the whole science of beekeeping, on a postal card, it caps the climax.

Mr. Chadwick, page 155, March 15, gives us some interesting reading, much of it as applicable to this side of the continent as the other. The fact that one man who put up bulk comb honey for only one season created a permanent demand for it is very significant.

I was very much interested in reading Mr. E. H. Shattuck's article on the tobacco industry in the Connecticut Valley, p. 162, March 15. I visited some of those fields under canvas last year, and found the bees working on the flowers. It is a pleasure to know that something as good as honey can come from this plant.

"Never too old to learn" is as true as old; and that photo of baby Curt Lundgren, that has been fed on milk and honey from its earliest infancy, teaches us one thing more about honey—that it is good for babies. We might have surmised as much; but we are so stupid as not to think. The land that in ancient times flowed with milk and honey has produced some of the noblest men the world has known, and one of the most virile of all nations—one that no amount of persecution or injustice has been

able to destroy—whose moral ideals have helped to lift humanity higher than any other. Hurrah for "milk and honey!"

How often we come across something that seems to upset all our fine-spun theories! I found a hive this morning with an entrance large enough to suit our friend Latham or Arthur C. Miller, and it was among my best ones too. Seven large combs of brood before a single apple-blossom appeared.

Travel where one may, through the length and breadth of the land, the banishment of the saloon seems to be a live question everywhere, and of more moral and economic importance than any other now before the American people. Some day this generation will surely be the object of ridicule for the silly and stupid methods of regulation now in vogue.

The early spring shows that bees have wintered very badly in Vermont. Where they were able to get a fair amount of honey last year, or where they gathered some the latter part of summer, they have wintered fairly well; but all colonies that were short of honey during most of the season have come through in bad shape, which to me shows very conclusively that the wintering problem depends a good deal on the previous season.

A good deal is being said about the folly of carrying all one's eggs in one basket. This is especially true of the South. One man raises all pineapples, another oranges, another celery, another tomatoes, another lettuce, and another bees; but it is risky. One man near where I boarded for a time said he made more money playing poker the week after he joined the church than in all his life before. Some one chided him for his unseemly conduct; but he said he could not see that it was any worse to bet on cards than on a crop of vegetables. If the season is favorable, and markets good, you win; if not, you lose. And do we not often tempt Providence when we attempt to carry all our eggs in one basket? If the poultry business can be made to fit into beekeeping as neatly and successfully as it is illustrated in GLEANINGS for Feb. 15, we beekeepers need not carry all of the eggs in one basket, but have two baskets and enough to fill both.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THE CONFUSION IN REGARD TO PROPORTION OF COMB AND EXTRACTED HONEY IN A PACKAGE OF BULK COMB HONEY.

There exists a great difference of opinion among beekeepers, even in Texas, the home of bulk comb honey, as to the exact way this product should be put up for the market. Although the packages used almost universally are standard, and especially adapted to the purpose, the mode of filling these varies with different beekeepers. The result is that occasional complaints are made by honey-buyers, caused by receiving packages which have not been uniformly packed, due to the fact that the purchases have been made from more than one producer. A first purchase may consist of packages containing more comb honey in proportion to extracted than is ordinarily put in. The next purchase may be made up of less comb honey and more extracted. The producers in each case have, perhaps, tried to be honest, and have been willing to furnish the best that could be supplied. The first tried to give "full value" in putting in as much comb honey as possible; but by so doing found it impossible to make up the required weight of the package. Comb honey being lighter in weight than extracted, it naturally follows that the more of it that is placed in a package the less the weight will be. So while giving full value by putting in more comb honey there must be loss in weight of the entire package.

The other beekeeper, then, tries to give full value by giving full weight. To do this it is necessary to make the quantity of comb honey smaller and the extracted honey larger until the proper weight is obtained. Just what the proportion should be is the question that should be decided upon by producers and purchasers alike, so that a standardized method of packing may be adopted.

No grading rules exist governing bulk comb honey, and it is doubtful whether such are necessary under present conditions. A general rule, understood by all honest producers and buyers, is that the honey must be of good quality and flavor. This means that both the comb and extracted honey, which constitute the product known as bulk comb honey, must give satisfaction so far as quality and flavor are concerned. Rather less attention, perhaps, is given to the color of the honey.

While it is generally understood by many producers as well as honey-buyers that the

gross weight including the package is figured in the price of the honey, there are many who do not know this. This causes much confusion. If prices are quoted on two 60-pound cans to a case, that would mean 120 pounds at so much per pound. Since the regular or standard 60-pound cans do not hold this in net weight, some buyers complain because of the shortage of the contents. This is especially so with retailers who sell honey in small quantities and find that a 60-pound can, for which a certain price a pound has been paid, falls from 1½ to 2 pounds short in weight. It is a matter that should receive immediate attention, and should be adjusted so as to meet the demands of all concerned, as far as possible, before the active shipping season begins.

In this connection the pure-food laws should be considered. It may be well to think over the question of the tags used on the shipping cases. For example, a doubt may arise over the meaning of a tag marked "One case two 60-pound honey," whether it be extracted or bulk comb. The point in question would be whether the label ought to indicate 120 pounds net or gross weight, especially since the case of honey is figured at 120 lbs. at so much per pound. It is very rarely that honey-packages are labeled by the Texas producers; but the cases containing them for shipment usually bear the above-mentioned wording on the shipping-tag. Besides this the price lists quote the various sizes in regular order, "Two 60-pound cans to a case at — cents per pound;" "ten 12-pound friction-top pails at — cents per pound, etc.," which may give the impression that this is intended for the net weight of honey, while it ought to cover the gross weight, because the regular standard cans do not hold the full weight.

We want to hear at once from all who are interested in this matter, as to what steps should be taken toward standardizing the packing of bulk-comb-honey packages, as well as extracted honey, and the proper labeling of the same, to prevent confusion and the possibility of violating the pure-food laws.

Your opinions are greatly desired, and will be appreciated; so, let me hear from you immediately. A few lines on a postal will suffice if there is no time for a letter; but a more lengthy discussion by letter would be preferable.

Conversations with Doolittle

At Borodino, New York.

SECURING WORKER COMB WITHOUT USING FULL SHEETS OF FOUNDATION.

"I wish to know how to have my bees build worker comb without foundation."

"Why do you wish to get along without foundation? Most beekeepers use it in the frames, and get the nicest worker combs."

"Well, I had to spend all the bees brought in, and some besides, to buy sugar to feed for winter stores, and I do not want to run in debt if I can make the increase I wish from combs built by the bees. Then I read the other day in an old bee paper that when bees are storing honey a certain amount of comb may be built at practically no expense, as the bees then secrete wax that would otherwise go to waste."

"Well, there is a grain of truth in such a statement; and if you have no money to invest in comb foundation it may be a wise thing for you to try having the bees build their own comb. But at this season of the year they are likely to build drone comb."

"That is the reason I came over to see you. I want you to tell me just what conditions are favorable for building worker comb, and how I may manage my colonies in such a way as to avoid drone comb."

"I used to let my bees build most of their combs, and at first inserted a frame having a starter of worker comb between two full ones; but finding that the bees would almost invariably build only drone comb, this was given up with the average or stronger colonies of bees."

"Is it true that weak colonies always build worker comb?"

"In a certain sense, yes. But colonies which are considered weak in May often become so far advanced that, when this time of the year comes, they are as determined to swarm as any, even though they may not have more than half the number of bees that a good swarm should. Such colonies will build only drone comb if the frames are spread apart and a frame having only a starter in it is inserted. But take such a colony as this, and deprive it of all its combs save one of honey and one of brood, then insert a frame having a starter in it between these two combs left in the hive, the bees will, forty-nine times out of fifty, fill that frame with worker comb, and then it will resemble any comb built from foundation under the most favorable circumstances. When I want the bees of such colonies to build worker combs I take frames of brood from the weaker colonies

I may have at the beginning of the nectar-flow—those too weak to work in sections to advantage—and give this brood to the weaker of the colonies I have set apart for section honey, and then set the weak colonies thus treated to building comb as I have explained. In this way I really make a gain in section honey, as this brood brings the colonies having it to the point where they can take advantage of the harvest; while if it had not been given such colonies would hardly have entered the sections before the flow of nectar was on the wane. If the brood had remained where it was, that colony would not have become strong enough for the sections until the time of the buckwheat yield, and thus little white honey would have been secured from either colony. But with the three or four frames of brood given to the one that would have done very little in the sections, the results will equal those of any of the colonies which were stronger in the spring."

"Is there any way of making the new swarms build worker combs?"

"Yes, if such swarms have a good prolific queen. If you have a ten-frame Langstroth hive, hive the new swarm on the whole ten frames, each having a starter of worker foundation in it. At the time of hiving, put on a super of sections, each row in the super having a bait section, using a queen-excluder between the hive and super. These baits allow the bees to store their first-gather honey, and that which was taken from the old hive, so that comb-building in the frames is only for brood. Two or three days after hiving the swarm, take out five of the frames having the least comb in them, closing up with dummies the space left vacant. The bulk of the bees are thus thrown into the sections, into which goes all the honey not required by the bees and brood, thus keeping storing going on to the fullest capacity, while the queen keeps up with her eggs as fast as combs are built below. In this way five worker combs will be built to perfection, and a good yield will be secured from each swarm."

"You do not try to winter the swarm on five combs, do you?"

"No. When the clover flow begins to draw toward a close, five combs, built by the manipulated weak colonies, are given to the swarm, and in this way the hive is filled out for winter, with *all* worker comb, while the bees always have an abundance of stores unless the season is unusually poor."

General Correspondence

SHIFTING THE HALVES OF A DOUBLE BROOD-CHAMBER TO PREVENT SWARMING

Forcing all the Honey into the Supers by Interchanging the "Laying" and "Hatching" Brood-nests; Separating the Queen from all Brood Every Ten Days Without Making her Stop Laying or Causing the Loss of any Brood

BY J. H. YEOMANS

For a few years I have been experimenting to perfect a "system" of handling bees for the production of comb honey when the beekeeper can not be at home during the day. I have received many ideas from other beekeepers, and have read many others; but usually there are some details that I do not like; hence I should like to submit the following, subject to the suggestions and criticisms of my fellow beekeepers.

My first aim was to have a "hatching story." In the spring, when the hive showed signs of becoming crowded, I added a second story. This delays swarming if added early enough. Then as soon as a honey-flow promised some surplus I raised this top story, putting supers between the two stories with a solid wire screen on top of the supers and below the hatching story. Then I found the frame with the queen and put her into the lower story, shaking the bees from about half of the frames with her. Then in about three days I shook half of the frames again, and in three days I repeated the operation. On the tenth day I cut all queen-cells that I found, and put the "hatching story" on the bottom and the brood-nest on top, and repeated the process.

While performing these operations I noticed that all dead bees were being put in the *lowest depression* of the wire screen. This made me think the bees were trying to carry out the dead ones, and so I hit on the idea of putting a bee escape at the lowest point. This works well except that for the first few days it is apt to be clogged with dead bees. After a few days, when old bees are gone from the hatching story, there is little trouble. I would advocate building a screen with several bee escapes.

My theory is to provide the queen with ample laying room, and to hatch all the eggs she lays up to a certain date, which should be decided by each beekeeper. I think that, where the fall flow is not profitable, it does not pay to raise a lot of bees to feed during a period of no surplus. With me most of my surplus comes in June and July; so I plan to stop my "switching of

stories" about June 1. Then I leave the queen in the lower story and let the upper story hatch out *entirely*. Then I put the upper story away until fall. When I take off all supers my colonies are so strong that for the past two years I have had to winter them in two-story hives.

I have no difficulty in making 100 pounds per colony with Danzenbaker hives. On one colony last season I had 128 sections at one time between the "hatching story" and brood-nest. No matter how cold the nights (our nights in Washington are nearly always cool), the bees will start work immediately in the sections between stories. Each year my system has been improved, I think, in some particulars. By making the bee-escape partition of wire screen, it allows the heat of the brood-nest and supers free access to the "hatching story." I have examined closely on the ninth day, and have found the bees capping larvæ, the eggs of which must have been laid the day I made the switch. Furthermore, I have left the hatching story on in June until every cell had hatched out, proving that no eggs or larvæ are destroyed, and that all sealed brood will hatch.

THE IMPROVED PLAN USED NOW.

My present practice is as follows:

1. In early spring I put on a second brood-chamber.
2. As soon as the queen has laid some eggs in both stories, and it is time to put on supers, I raise the upper story and put supers between them with the escape screen on top of the supers and below the hatching story.
3. I make sure the queen is in the lower brood-nest, or *laying brood-nest*. The top brood-nest is the *hatching brood-nest*. I keep the queen in the laying brood-nest all the time, except that I have found it saves time to wait 24 hours after making each ten-day switch before hunting her in the top story. This gives the field bees time to go down through the escape screen, and they are out of the way, making it easier to find the queen.
4. Ten days later I switch the laying brood-nest to the top of the colony, above the escape screen, and, after cutting out queen-cells, I put the hatching story at the bottom of the colony and make it the laying story for the next ten days.
5. I repeat this every ten days as long as I desire to increase the colony strength. I begin switching about May, and continue the practice every ten days until perhaps June 10. I introduce a young queen to

the hatching story; kill the old queen, and force the bees into the supers for the rest of the season. (A laying queen may be kept in each brood story, but one will have to switch stories as usual or the top story will run out of its supply of honey and pollen.) This system separates the queen from all brood every ten days, without stopping her laying, and without the loss of any brood.

I watch the bee escape to keep it clear for passage of the bees that wish to get out. They go to the fields for honey, come back, and find their *storage* in the usual place relative to the hive entrance. The field bees and those of age of first flight are the first to go below, and they increase the field force just as wanted. The nurse bees are left with the eggs and larvæ, just where they are wanted. They use the honey and pollen stored in the hatching story, which cleans up and makes room for the queen to lay at the next switch. This system separates the queen from all brood every ten days without stopping her from laying, or causing the loss of any brood.

I put on an old comb, badly clogged with pollen, in the hatching story (for an experiment) with the rest of the combs, mostly new, and with little pollen in them. The bees cleaned the comb in fine shape, and raised all the brood.

On the tenth day, when I cut out all queen-cells in the hatching story, and put it below, ample room is provided for the queen to lay, and more added daily by those hatching. In fact, the daily hatching in the brood-nest for the ten-day period the queen occupies it will keep her busy a good part of her time. I have no trouble whatever from the bees clogging the brood-nest with honey. So far I have had to feed every fall, as all the honey, or nearly all, goes into supers.

INTRODUCING QUEENS.

This system is the finest one I know of to introduce queens. Twenty-four or thirty-six hours after you switch stories, introduce your new queen to the top story. As this is occupied only by young bees, they will readily accept her. I have never lost one. If young queens can be obtained early enough, one can be introduced above, and both queens allowed to lay for a week or two, and then the old one destroyed—that is, I let both lay up to the date that the bees will hatch, so as to be of use during the honey-flow. I never use both queens until there are so many bees that they will eat all of the surplus. I did that one year on a colony that promised me 250 pounds. They were so strong all summer that it took two full-sized brood-nests to hold them in

the fall, and my crop was only about 125 pounds. This was a colony from which I had planned to extract in the fall, and had it seven stories high, with bees working in every story.

Swarming has been eliminated in my apiary entirely. A few minutes per colony once or twice a week, at morning or evening, will be sufficient to handle this plan quite satisfactorily. The screen between supers and top story should allow bees to go down and not up. Several bee escapes should be arranged so as to make egress easy.

Spokane, Wash.

AN OUTSIDER IN COLORADO

BY DR. E. F. PHILLIPS

GLEANINGS maintains a department conducted by the Colorado State Inspector of Apiaries; but it may be of interest to mention a few points which came to notice during a recent hurried trip which I had the pleasure of taking through the State. Mr. Foster, who also went with me on this trip, naturally sends items which will appeal more especially to the Colorado beekeepers; but those outside may desire to get some idea of conditions in the State which he might not think of giving. There are some things which may be mentioned which have such an obvious moral that the reader will possibly conclude that these descriptions are being given solely to air personal views. This is not always the case; but the adverse criticism (if it is such) will be accepted gracefully. Another advantage in discussing Colorado beekeeping after a brief visit is that it gives Colorado beekeepers, and especially Mr. Foster, such a glorious opportunity to correct errors which are almost sure to appear. If any such are detected, no person wants to know it more than I; for naturally some conclusions were necessarily drawn from small accumulations of data.

DISEASES.

Since my trip was particularly for the purpose of studying the brood-disease situation it may be as well to say something of that first. American foul brood has been prevalent in Colorado for many years, and is now present in nearly every beekeeping location in the State. In Boulder County, for example, where the beekeepers have had years of experience with the disease they have lost their fear of it, and never allow it to cause much loss. On the western slope, however, where it is seemingly of more recent introduction, the beekeepers are not yet so well informed, or perhaps less con-

fidant on this subject, and, as a natural result, the disease is causing greater loss. This is an exact duplicate of the experience of beekeepers in many other localities; and it may be accepted as proven, that, where a means of educating beekeepers in diagnosis and treatment is provided for a period of years, either disease loses much of its power for harm. The means of education is usually a system of apiary inspection. Without such means, however, disease practically wipes out the industry, as it already has done in many localities in the United States.

However, the beekeepers on the western slope are fast getting in line, and most of the more extensive beekeepers are now in condition to cope with the trouble. They are now organizing county associations, having new inspectors appointed where needed, and are co-operating in a gratifying manner in the work. It is reported that from 5000 to 7000 colonies died of disease in one county in two years, due to unsatisfactory inspection; but this will not be repeated in that county at least.

It does one good to meet a crowd of beekeepers who, when asked how many colonies they have, give their answers in hundreds. We of the East too often confine our beekeeping efforts to five, twenty, or fifty colonies. Wherever the "hundreds" beekeepers are found in abundance it may safely be concluded that bee diseases will soon be controlled; but where the average is five, the problem of control is literally multiplied by thousands. It is also gratifying to hear the crop discussed in earload lots; for while the crop this year is light, the unit of measure is not changed.

I found in different parts of the State a number of beekeepers who were fearful that European foul brood would cause them serious losses. In one place a prominent beekeeper stated that he doubted whether there was a colony in the county which did not show some European foul brood during the season. In view of the fact that we had never had a single sample of European foul brood from Colorado, this was a surprising statement. I found on inquiry that, several years ago, a sample of discolored brood had been sent to an "expert" for examination, and he had pronounced it "black brood." This was before the name European foul brood was in use. Since the same condition is now widespread, and since the beekeepers were led to accept the expert's (?) dictum as gospel, the natural conclusion was that the disease now called European foul brood was widely distributed. The condition referred to is the so-called "pickled brood." No colonies have died of

the disease, which is enough to cause one to doubt the accuracy of the diagnosis; and when the symptoms of the prevailing trouble were described they did not at all resemble European foul brood. Such expert advice can not be considered as of extraordinary value to the industry. "To err is human," but before expressing an opinion in such matters one should consider the anxiety and expense that may follow the receipt of the reply. European foul brood may exist somewhere in Colorado, but no samples have so far been received from there by the Bureau of Entomology, and it seems probable that we should have received some intimation of the disease if it were present to any extent.

Several years ago the beekeepers of the State were instrumental in having a law passed providing for a county system of inspection, the inspector to be appointed by the county judge on petition of the beekeepers. County inspection is usually far from perfect, in that the inspectors in the individual counties do not co-operate. It is, too, not always possible to get a good man in each county to take the position, even if the various judges or other appointing officials were always anxious to appoint the best. It would be easy to offer other objections; but the same criticisms, or others just as weighty, might be offered against almost any system.

At the last session the State Legislature passed a bill providing for State inspection under the supervision of the State Entomologist. This is similar to the plan in several other States; and in such cases the results are highly gratifying. This has been the recommendation of the writer for several years; and it is pleasant to know that, in several States and Territories, the beekeepers have been and are of the same opinion as to the desirability of the plan, and that in seventeen cases it is in force to-day. It may be mentioned parenthetically, that in 1906 there were but two such laws.

Prof. C. P. Gillette, the State Entomologist, has for several years been interested in bees, and has written several bulletins of value to beekeepers. This is an increased assurance that his supervision will be for the best interests of the beekeepers. His deputy in the work is Mr. Wesley C. Foster, of Boulder, who comes of good beekeeping stock, and who counts his colonies in hundreds. Since Mr. Foster is so well known to GLEANINGS readers no further introduction is needed. Not being a lawyer, an expression of opinion is somewhat risky; but it looks from the road as if both laws were still in force, for the new law seems not to repeal the old. This is work-

ing out in a satisfactory manner in that the county inspectors are still at work, but the State Inspector can guide and direct the work in a harmonious manner, and step in to help where he's most needed. In fact, the State Inspector has declared his intention of working only in counties where county inspection is maintained. The State work could not be begun until August; but Mr. Foster has already made a careful study of conditions all over the State, and has spent several weeks in harness. It is too early to report on results, but it seems easy to predict that they will be good.

SOURCES OF HONEY.

Colorado is justly noted for its alfalfa honey. As is, of course, well known, alfalfa is grown in Colorado only under irrigation, and usually three crops are cut each season. If the alfalfa-growers would only cut their alfalfa to suit the beekeepers, Colorado would lead the country in honey crops; but the hay is usually cut just as it comes into bloom, except, of course, where a seed crop is desired. The increase now being made in the irrigated areas is naturally offering new locations for beekeeping; and if alfalfa remains a leading crop by the time the total irrigable area of Colorado has water on it we may look for train-load crops of honey. With the increase in the price of alfalfa hay, however, there is a marked tendency to cut earlier, and this has already hurt the honey crops. Cleaner cultivation and better care of irrigation ditches have already in some localities decreased the amount of sweet clover, which is a valuable addition to the honey resources. If Colorado irrigation water comes to be carried largely through pipes, as it is in parts of the West, the amount of sweet clover will be reduced with serious results to beekeeping. These factors are said to be largely responsible for the recent failures of the honey crops in northern Colorado, which have resulted in the shipping of several carloads of bees to new fields in Idaho, Texas, and elsewhere.

Every one knows that Colorado is celebrated for its deciduous fruits. This brings to the beekeeper a bountiful supply of early nectar; but colonies are usually not in shape to store any surplus, any more than they are in the East; so that, as elsewhere, the fruit-grower profits more by the work of the bee than does the beekeeper.

The Rocky Mountain bee plant (*Cleome*) is abundant; but at the places visited little mention was made of its being a main source of honey.

COMB HONEY.

Probably the majority of the beekeepers I met in Colorado are producers of comb

honey. Alfalfa honey is beautifully white, and the comb honey is certainly choice-looking. As an objection to the production of comb honey in an alfalfa region may be mentioned the fact that the honey granulates quickly. This is, I understand, true mainly after it is extracted, however. Furthermore the honey-flow is not excessively rapid, rarely exceeding a gain of five pounds per day, while three pounds would probably be a good average in a good season. The flow extends intermittently from some time in June nearly or quite to September 1, extending over the periods of the three cuttings of alfalfa. Such conditions would not appear ideal for comb-honey production to an eastern comb-honey man. However, the demands of the market seem to indicate that comb honey is more profitable than extracted, and most beekeepers seem to prefer it. There are exceptions to this general rule, so that Colorado differs not at all from the East in having arguments as to the desirability of each kind of honey production. There seems to be no hope of settling this question on this side of the Styx, so I refrain from starting an argument on the subject.

Washington, D. C.

To be continued July 15

THE RED FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL.

There are only 257 red flowers in our northern flora. Their hue is due to a soluble red pigment called anthocyan, dissolved in the cell sap. It is also of frequent occurrence in the stems and leaves of herbaceous plants, as well as on the under side of aquatic leaves and of radical leaves growing in rosettes, as in the mustard family. It is particularly abundant in early spring and late fall, and at alpine heights. It probably serves to convert light rays into heat, and thus aids the plant in its growth under cold skies.

Red anthocyan is always acid; for instance, when a red rose is dipped in a weak alkaline solution (ammonia) it becomes blue; but if it is then treated with a weak acid its red hue returns. In this way its color may be changed repeatedly. Red coloration is much more common in foliage than blue, because the cell sap is usually acid. We have undoubtedly here the explanation of the difficulty florists experience in their endeavors to produce a blue rose. The rose family exhibits a marked tendency in stem, leaf, bud, flower, and fruit to develop red coloring—a tendency due to the strong acidity of the cell sap. Of

the 148 flowers in eastern America, 4 are green, 82 white, 39 yellow, 19 red, and 4 dull purple; but blue does not occur at all. A blue rose will be produced only when a flower is obtained in which the cell sap changes from acid to alkaline. This actually happens in the common borage, the corolla of which is at first red but later turns blue.

It was long believed that the same species could not produce yellow, red, and blue flowers. But this doctrine, to use the words of Dr. Lindley, "must now be laid up in the limbo of pleasant dreams." This supposed law is contradicted by the hyacinth, pansy, cardinal larkspur, and many other plants. Though both red and blue coloring never occur among the wild roses, a hyacinth has been seen to produce a perfectly pink and a perfectly blue blossom on the same truss; another truss had blue flowers on one side and red flowers on the other, and several of the flowers were striped longitudinally red and blue. In the sweet-scented violet (*Viola odorata*) blue cells may occur above and red cells beneath.

It is a very common occurrence for white flowers to change to red, and every stage of this transition is placed before us by the rose family. White and red roses may occur on the same root, and white and pink flowers have also been seen on a single plant of the snapdragon. Several kinds of pinks are at first white, but later change to red. This change of color may be brought about by a strong stimulus, as when lowland white flowers are grown under the intense light of alpine heights, or are stung by gall-flies. When a white flower of the common thorn-bush is stung by a gall-fly, all the organs become bright red, and increase in size.

Mr. A. I. Root has already called attention in GLEANINGS to the violet-blue rose offered for sale by florists for the first time during the season of 1911.

There are a number of families in our flora in which red flowers are common, but blue is wholly absent. The buckwheat family contains 11, the orchis family 22, the rose family 19, the mallow family 13, the evening-primrose family 10, the heath family 10, and huckleberry family 11 red-flowered species; but there are no blue flowers in any of these families. While this is primarily due to the acidity of the cell sap, it will be noticed that most of the flowers are regular in form and but little modified. In other families, such as the pea, gentian, and mint families, both red and blue flowers are common.

There are many red lilies, orchids, and pinks, which are great favorites of butter-

flies; and, therefore, it was long thought that butterflies, at least the fire-red kinds, preferred red hues. But further proof seems desirable. Red flowers are most abundant in the pink family, which contains 22 species. The pinks exhibit a wonderful variety of red shades, varying through rose, pink, and deep red to scarlet and crimson. The petals may be dotted or marbled with white, and they are often notched or fringed, and surmounted with a corona of scales. The scent is aromatic, and the nectar lies at the bottom of a slender tube where it is often inaccessible to all insects except butterflies.

Trees with red flowers are rare, but shrubs are common. Of trees, the peach, red buckeye, and red maple are the best-known examples. There are many red-flowered shrubs in the rose, heath, and huckleberry families. Undoubtedly the two handsomest North American shrubs belong to the heath family. The are *Rhododendron maximum* and *Kalmia latifolia*, or the mountain laurel. Asa Gray says that in North Carolina they adorn the valleys and mountains in immense abundance and profuse blossoming of every hue from deep rose to white.

It is rather remarkable that, among the 571 species of *Compositae*, there are only nine red flowers. On the other hand, 13 species, or one-half of the mallow family, have pink or red blossoms. In the buckwheat family the petals are wanting, and the flowers are small; but the calyx is often red, and sometimes the seed-vessels, stems, and leaves. In the poppy family the flowers are crimson, scarlet, and yellow, and the sap is also yellow or red. The wild columbine (*Aquilegia canadensis*) produces scarlet flowers which are yellow inside but rarely all over. There are two other species in our northern flora which exhibit similar coloring. They are the trumpet honeysuckle and the Maryland pinkroot. The former is sometimes yellow throughout. All three of these flowers are visited by hummingbirds. Another hummingbird flower, the cardinal flower, is unsurpassed in the brilliancy of its coloring by any other red flower.

The number of red flowers which are valuable to the beekeeper is much smaller than those which are white or yellow. The most important are the peach, huckleberry, red and crimson clovers, and the great willow herb, or *Epilobium angustifolium*. In New Zealand thousands of acres of waste land are covered by New Zealand flax (*Phormium tenax*), which produces a beautiful red flower and yields a most delicious honey.

Waldoboro, Me.



FIG. 1.—Owl Creek apiary of A. B. Marchant, near Sumatra, Fla. But for some hard work in raising the hives up on empty supers this yard would have been lost. It was intended to fill the carload order for bees from this yard; but water made this impossible.

SHIPPING BEES BY THE CARLOAD FROM THE SOUTH TO THE NORTH

Migratory Beekeeping

BY E. R. ROOT

While I was at Mr. Marchant's in Florida, I engaged his son Ernest, who was his father's lightning operator at extracting, to come and work in our yards. The demand for bees last year was usually heavy—so much so that our colonies were comparatively weak—especially for so severe a winter. Along the last of February we sent Mr. Marchant down to his father's to bring back a carload of bees in three-frame nuclei. We had figured that we could put 500 such boxes of bees in an ordinary car. Nucleus boxes, including the queens, were shipped in the flat by freight, nailed up in Florida, and after the bees got to breeding well the boxes were filled with bees and brood. On the 6th of May the bees were loaded on to the boat at Patrick's Landing, and then carried up the river to Bainbridge, where they were put in a car for Medina.

Unfortunately for Mr. Marchant there were heavy rains and floods throughout the entire South, particularly in the Appalachicola region. The Owl Creek yard, from which the senior Mr. Marchant expected to make up this order of 500 nuclei, came near being drowned out as will be evident from Fig. 1, which view was taken when the water was at its greatest height. A. B. Marchant is seen at the left, and Ernest Marchant is at the right. It appears that

they had a strenuous fight in saving the bees. This they did by raising the hives up on supers to keep them out of the water, for the hives were already on hive-stands that raised them 18 inches off the ground. The water kept rising until the gasoline launch was called into play to help out. It was impossible to make any general landing, and hence our order for nuclei was filled from another yard. The first carload arrived on the 13th of May, being just a week on the road. The bees were loaded into an open cattle car, one tier being placed on a framework just above the floor to secure bottom ventilation, and another tier about four feet above the first tier. In the center of the car was a little space for a cot, some bedding, a barrel of water, a bee smoker, several sizes of big nails, and a heavy hammer. Mr. Marchant was supposed to ride in the caboose; but the weather was so changeable that he took up his headquarters in the car with the bees.

When the bees started it was insufferably hot, and they needed sprinkling. Then it rained; and when the car almost reached its destination a fall of snow came on. The result was that Mr. Marchant was kept busy in shading the bees from the sun with strips of muslin which he carried with him; next changing the muslin to cut off the wind and the rain, and finally throwing the muslin over the tops of the hives, including all his bedding, to keep out the snow and cold. He had all conditions of temperature from 100 in the shade down to freezing; and as he relates his experience he says the common cattle car, to put it mildly, is no "Pull-

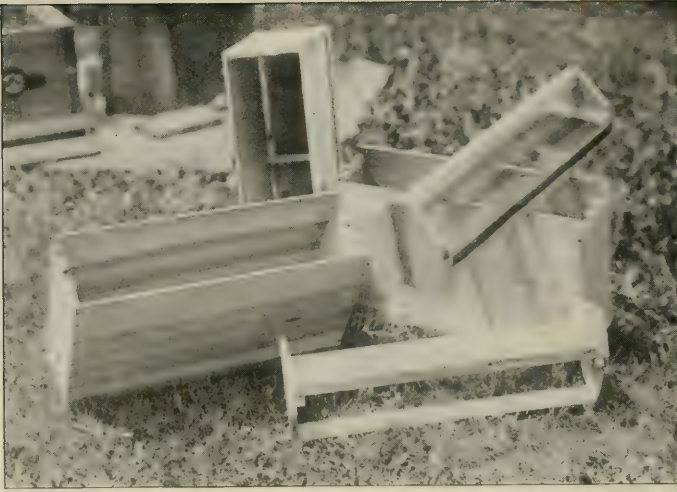


FIG. 2.—Empty three-frame nucleus shipping boxes that were used for the carload. Note that the boxes are made of light thin stuff, and screened top and bottom.

man." I said to him, "Why didn't you ride in the caboose, Mr. Marchant?"

"I did not dare to," he said. "The railroad people gave me an old rickety cattle car that I was really afraid would fall down on me."

Whenever he saw it was beginning to give way in places he put in additional braces and plugged in more nails. Next the bees would need water. Then they had to be screened from the cold winds at night. The result was he had to be up and doing almost night and day.

"No, sir," said he, "carrying 500 nuclei in an open cattle car 1400 miles is no snap. One has to secure his dinner on the run, grabbing up a sandwich or pie between stops. When the car was changed from one division to another I had to beg and almost threaten the conductor and his crew to get them to take my carload of precious freight in the next train that pulled out. They would tell me that the car could wait till the next day—that they were too busy, etc. I told one conductor he *had* to take the bees or there would be trouble."



FIG. 3.—Three-frame nucleus shipping boxes filled with bees. The screen tops (with the convenient cross-rail for a handle) are secured to the nucleus box proper with two screws at each end. Such boxes are very handy for moving bees, either for shipping or carrying from one part of the yard to the other. They are also very handy for carrying combs.

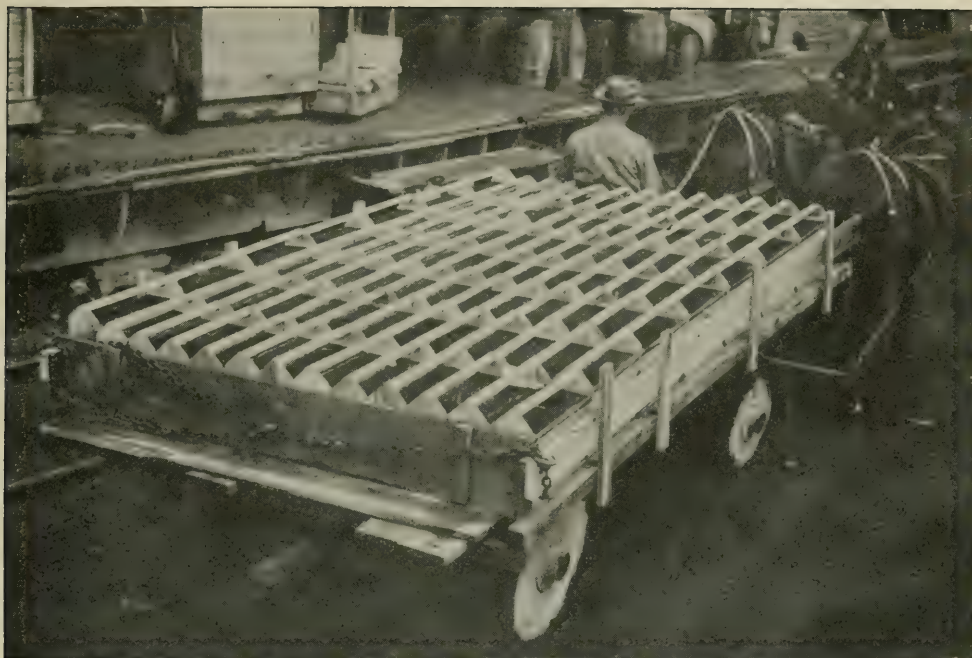


FIG. 4.—Wagonload of 91 nuclei *en route* to the Basswood yard. A low-wheel wide-tired wagon is just right for loading and unloading, and for carrying bees from one yard to the other. The wide tires make it possible to get over soft sod when the ground is wet. We use this wagon with the team. We also have a light spring wagon and a horse for small loads.

While railroad men are used to handling perishable freight, they seem to think bees can lie over awhile and cool off, and that it would be better for them.

In spite of the extremely hot weather, in spite of the cool nights, and in spite of the snow, rain, and hail, the bees came through in splendid order. Not a particle of brood was destroyed, and, so far as we can discover, all the unsealed brood was left intact. More remarkable still, the queens kept on laying in spite of the bumps and jolts and the changes in temperature. When the bees were unloaded at Medina we found young brood in all stages, and eggs, while a good part of the sealed brood had been hatched; for it is a well-known principle in shipping bees that it is always advisable to send only *sealed* brood. Unless the bees are watered they will lick up every particle of unsealed brood.

But Mr. Marchant prevented this by watering the bees three or four times a day. This was done with a watering-pot, spraying water right on the wire cloth. The frequent sprayings, he thinks, prevented the bees from destroying their unsealed brood, as they usually do when sent by express in the usual way. Not only did the bees continue to rear brood, but some of

the queenless nuclei kept on cell-building; and when they arrived there were several that had virgins running loose; and when they had no opportunity to fly, there seemed to be no disposition on their part to fight, on the principle of the survival of the fittest.

Still again, there were several nuclei that had caged queens; and in every one of these the queens were released, and in some cases had laid eggs. All together, I think this was one of the most successful shipments of bees ever made. Briefly stated, the secret of that success was in giving the bees plenty of water as often as they needed it, ventilation top and bottom, and protecting them from the hot sun, and, I might say, from the wintry blast at the latter end of the journey; for it will be remembered that considerable snow fell here on the 12th and 13th of May.

Let us now take a look at the nucleus boxes themselves; for no small part of the success was due to the style of the carrier. The reason we decided on three-frame nuclei was to get a large number of queens and frames of bees and brood with as little weight as possible. In Fig. 2 the construction of the carrying-box will be apparent. The ends are made of 7-16 lumber, while



FIG. 5.—Taking the bees out of the nucleus boxes and putting into the hive. These boxes of bees are just right for strengthening up weak colonies in the apiary.

the sides are 3-16 and nailed on to the ends. The ends of the top-bars of the frames rest on notched cleats. The bottoms of the end-bars are held by similar notched cleats nailed crosswise near the bottom on the inside of the ends. The under side of the nucleus is covered with wire cloth, and below this, about half an inch, is a false bottom of wood. The top of the nucleus is made with gable ends with a cross-cleat, that is used as a handle in picking up the nucleus boxes. Besides the hand cleats are two strips of 3-16 lumber that hold the wire cloth. A couple of cleats at each end securely fastened to the cover hold the frames in place; and when this cover is secured it is impossible for the frames to shuck up and down or against each other.

In Fig. 3 we show the nuclei filled with bees, ready to load on the car or wagon.

Fig. 4 shows 91 nuclei loaded on to a wagon with small wheels and wide tires. This was the first load out of the car, *en route* for one of our outyards. The advantage of *low wide-tired* wheels in loading and going over soft ground in going to the beeyard in the back lot will be apparent.

On arrival at the yard one nucleus box was placed by the side of each one of the empty hives. Then the boys went around,

opened up the hives, lifted out the frames of bees, and put them in a hive on their permanent location. This was followed up two days later with frames of empty combs for queens to lay in.

This shipment of bees arrived just before the opening of fruit bloom, so that they were able to gather honey that amounted to nearly the cost of the freight on the bees; for honey from natural sources will do more to stimulate the rearing of brood than any thing that can be done in the way or artificial feeding.

So successful was this shipment of bees that we sent back this same man, Mr. Marchant, to his father's place for another carload; and a telegram just received informs us that they started to-day, May 27.

We expect this carload of bees to reach us in time to catch our northern clover and basswood. If we have any kind of flow, the honey secured should go a long way toward paying for the cost of the bees, and at the same time leave us the bees and the queens to supply hundreds of beekeepers who have lost heavily during the winter.

The first shipment of bees was loaded on to a boat after the main honey-flow from tupelo was over. The idea was to utilize the bees in Florida until the flow, and then



Mr. Beaudin's residence, with apiary in the background.

ship them north to catch another flow. The first car was to reach the fruit bloom, and the second car, if nothing unusual happens, will be here in ample time to get in good shape to catch the basswood and clover.

MIGRATORY BEEKEEPING.

Migratory beekeeping has not been practiced to any extent in the United States. One difficulty is that our distances are so great, and the freight is so high, that most beekeepers lack the nerve to try it. Quite a few beekeepers in Northern Michigan have managed, however, to catch their clover and basswood, and then move northward by car to catch raspberry and fireweed. It is my opinion that migratory beekeeping might be practiced to more advantage than it has been.

Just now the beekeepers in some western States are moving their bees by the carload, after they secure one crop, into California to catch the alfalfa or sage that comes on later. At this writing, May 27, it is stirring up a hornets' nest, or, rather, a bees' nest, among the California beekeepers, who fear the introduction of disease, and who complain that their territory is already overstocked. The fight is on, and how it will be settled remains to be seen.

A SUCCESSFUL FRENCH CANADIAN BEEKEEPER

BY A. L. BEAUDIN

In April, 1893, I bought my first colonies of bees, a copy of the A B C of Bee Culture, and Dadant's Langstroth. Since then I have bought many colonies as well as a large quantity of honey. In 1910 I increased from 180 colonies in the spring to 256 good colonies in the fall, and took 26,000 pounds of extracted honey and 256 pounds of wax from cappings. All of the bees were in one apiary, and in nine-frame Lang-

stroth hives. I have one capping melter and one six-frame automatic honeyextractor with a one-horse-power gasoline engine for driving it. I am much pleased with the outfit.

In the fall of 1911 I took 10,000 pounds



A. L. Beaudin, the French Canadian who increased from 180 colonies to 256, and extracted 26,000 pounds of honey.



A. L. Beaudin's 250-colony apiary at St. Chrysostome, Quebec, Canada.

of extracted honey from 170 colonies, and 120 pounds of wax from cappings.

The Universal Simplicity feeder, which I invented, is a feeder *par excellence*, as it can be adapted to all styles of hives, and one person can feed 200 colonies with it in 30 minutes, without disturbing the bees. The size is 6x12 inches, and 5-16 high, with capacity of about 10 ounces. This feeder is made of tin, and in order to secure the best results it should be exactly plumb. I have used it about 12 years without adapting it until recently to different sizes of hives.

St. Chrysostome, Que.

BOOK-KEEPING NECESSARY

A Book for Each Kind of Record to be Kept, Better than One Unwieldy Volume

BY LEO ELLIS GATELY

In any successful business, operations must be mathematically evolved and systematically conducted. It should, therefore, be apparent that, if the apiary is to be put upon such a basis, no hit-and-miss practices can be tolerated in record-keeping.

In both books and publications on bee culture, this matter appears to draw forth scant discussion; and what is found seems intended more to arouse interest in the sub-

ject than to outline any formulated plans or up-to-date methods. If an improved method is given, the chances are that its supposed superiority will be based chiefly upon the doubtful grounds of ease and rapidity, with an utter disregard of the more essential features of accuracy and permanency. Would it not be far better to devote considerably more time and patience to a precise and comprehensive system?

In an endeavor to keep a complete record of all that transpired in our apiaries we struggled for years through oceans of marks, tags, and memoranda, testing about every scheme in existence. This labor would, in fact, often assume such proportions as seemingly to overshadow all other duties. There are, no doubt, plenty of others now making a similar mistake.

When unimportant details keep one until so late at night that the big things get put off till some future time, there is room for improvement in that system of accounts. Neither it is always neglect that tangles balances and reports. Instead of one bulky volume in which to enter tiresome memoranda, an endless amount of bookkeeping drudgery will be eliminated if a complete set of small ones is kept, divided and subdivided into all necessary departments. These may bear such distinctions as:

Day-book; weekly queen-rearing; month-

ly bought and sold; annual colony-record, and such others as the requirements may demand. The pages of these are ruled off, and in the separate spaces headed according to the character of the record being kept. The annual colony-record will, for instance, be headed at the top of each page, something like this:

Date; number of colony; kind of hive; queen—age; supers, given—removed; honey—lbs.; feed, cost; variety of bee; gentleness; swarming; supersedure; capping; rating; colonies on hand.

With such a set of books it requires but a moment to enter *permanently* the full details of any operation or transaction; and it is then possible, for all years to come, to know at a glance exactly what each colony has done or is doing. While it is well to use some system of temporary hive-index, with tags or their equivalent, records are lost with each change that may be a daily occurrence, and can never become more than a minor part of any well-regulated recording system.

As the majority of beekeepers are now beginning to take great pains in making careful selections for breeding stock, it is now, as never before, becoming necessary not only to watch the progress of the hatching cells, but to make some definite and lasting record of the yield and general char-

acteristics of individual colonies; for otherwise there will be no possible means of determining which are really superior, as the colony that last year did so splendidly may this season prove an utter failure, or the reverse. The importance of keeping such records in permanent form should, therefore, be obvious, as it is an established fact that one summer is wholly insufficient to prove the true value of any queen.

Ft. Smith, Ark.

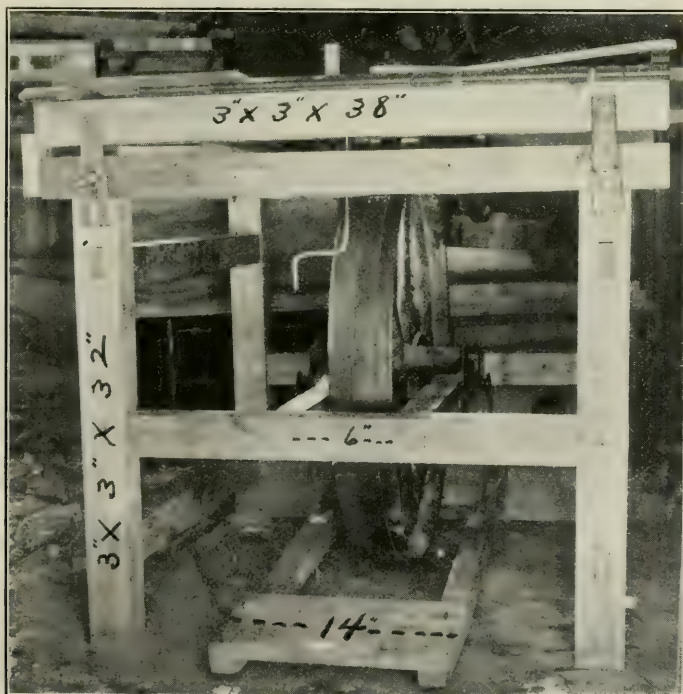
ORTON'S HOME-MADE SAW

Further Particulars Regarding it

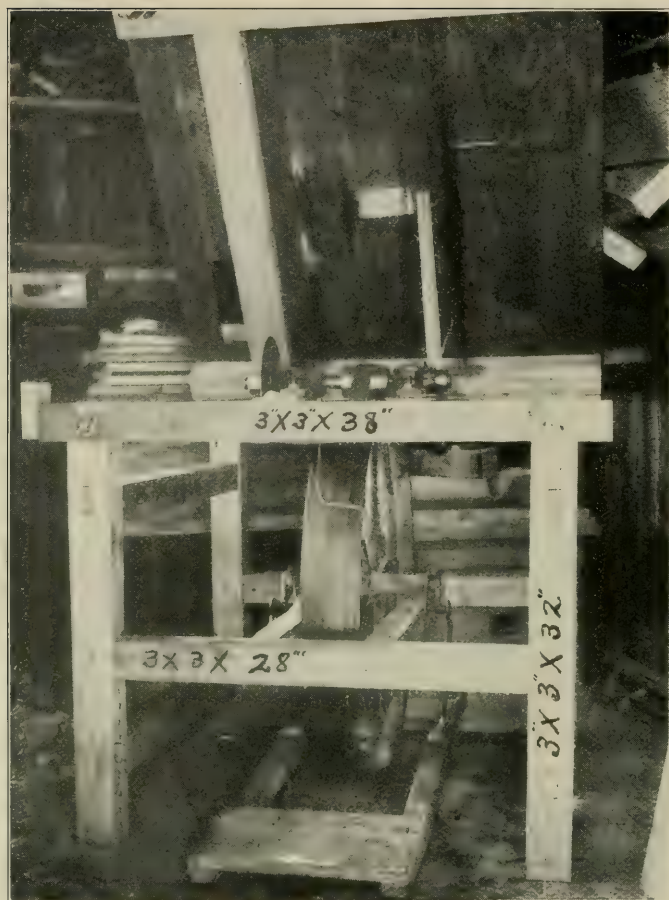
BY PERCY ORTON

Ever since you published the description of my home-made foot-power saws, p. 627, Oct. 15, 1911, I have been besieged with letters asking about the details of their construction. The two illustrations of the better-working saw of the two I made give dimensions, etc. Many refrain from making a start with bees on account of the high price of factory-made hives. Those who are ingenious, and have plenty of good pine lumber, and a cheap home-made buzz-saw, can easily make good hives.

The frame is 3x3 hard wood, 32 inches high, 34 wide, 39 long. The 30-inch drive-



Detail of construction of Orton's home-made foot-power saw.



The table raised, showing saw and mandrel beneath.

wheel should be of iron, with either a three or four-inch face. It may be a plain wheel or an old mowing-machine wheel "trued up" by a machinist. The ball-bearing hangers are from an old grindstone.

The 8-inch saws should have a hole for a one-inch shaft, and should be very thin, like those used on the Sears & Roebuck foot-power saws.

My mandrel came from Sears & Roebuck. The length of the 1 1-16 shaft is $16\frac{1}{2}$ inches; the diameter of pulley, $2\frac{1}{2}$; face, $3\frac{1}{2}$. The whole mandrel, including the pulley in the center, cost me \$3.53. I use a canvas belt; but any belt $1\frac{1}{2}$ to 2 inches wide is suitable.

The table was made from the leaves of an old extension table. It is hinged at the back, and raised and lowered by the screws in front of the drive-wheel.

This is a homely machine, but it runs easier than a No. 4 Barnes saw that I own,

or a Sears & Roebuck that a neighbor of mine has to do carpenter work with.

Northampton, N. Y.

ADVOCATING A STEP BACKWARD IN BEE-KEEPING

BY WALTER S. POWDER.

In all the different branches of agriculture there is none quite so interesting and fascinating as beekeeping; and thousands are making their first efforts for a start annually; but when we follow them in their trials and hopes we find a very large part of failures which should not happen. Just as long as this condition exists we know that there must be something lacking in our books and magazines, and in the teachings that are being followed. I have met with hundreds of instances where extravagant outfits of supplies were secured, a

year or two of pleasure and hope, and then all were discarded as a failure, while the same amount of money invested in honey would have supplied the family for years. Just as long as these conditions exist we are forced to admit that there is something wrong with our industry. There is a demand for simplicity, and safer promises for returns from investments; and we have drifted into a system of manipulating hives that has become standard and yet not up to requirements.

The beginner has the impression that he must secure the very latest equipments described in the catalogs, believing them necessary because in general use, and it seems that all of us have reached this same conclusion. We discarded the two-pound section long ago to adopt a standard pound (?) section to meet commercial demands; but to-day we have no section of comb honey weighing, uniformly, a pound to the section. We admit that bees stored more honey in the larger section; but we sacrificed it for the smaller, it being most in demand; but it is still a question whether the quantity produced would not have increased the profits for the producer. We all *think* we must use separators or fences in producing comb honey, and yet we know that any plan that divides the cluster during comb building retards the progress greatly. Our seasons for surplus honey are short at the best; and how disappointing to close the season with a few small unfinished sections between separators, when, with different and more simple equipment, results might have been more satisfactory! I sometimes think that the beekeeper known as the "old-fogy type" is ahead of his "up-to-date" competitor when I see the results. For instance, the man who produces comb honey in shallow frames or full-size brood-frames, and then cuts it out, adds some extracted honey, and puts it up in a neat container with his label. He would not consider sections or separators, has less swarming during the flow, his product is always in demand, and the method paves the way for safe winter preparation.

The demand for broken comb honey or bulk comb honey is excessive, and is increasing. One can produce both comb and extracted in the same yard; and with the same equipment the quantity of comb produced on this plan will be much greater than what could be secured in sections where clusters of bees are divided. Some will say that the objection would be granulation when put up. Comb honey that has not been bruised in shipping will keep a long time without granulating, and packages could be put up as required, always fresh

and clear; and even if some did granulate we begin to know that granulated honey is not to be snubbed. There is a most excellent illustration of this method in Texas. Texas is a large producer of very fine honey, and yet we do not hear of Texas honey on our overstocked markets. The reason is, they have learned how to create a home demand for their product; they have a good thing, and they use it themselves. I am informed that every family, rich or poor, has a can of broken or chunk honey in the house. It reminds me of the story of the traveler at a hotel. He ordered an extra-tender porterhouse steak and accessories; but the waiter halted him with the remark that, if the boss had a steak like that in the house, he would eat it himself.

Beginners become confused about hives as to wintering qualities, and should be impressed through books that a strong colony with an abundance of stores will survive in almost any kind of hive. The severe losses of the past winter can almost be traced to lack of stores—bees simply starved to death, but often in the midst of plenty. If bees were overfed in fall it would add much to their safety in winter, and they would produce surplus earlier the next season if the brood-chamber were well supplied.

Indianapolis, Ind.

SWARM PREVENTION

Three Methods for Effecting it by the Use of Large Hives

BY GARRISON H. ADAMS

There are several good methods of keeping bees from swarming. The best is one which I have used to a great extent for 25 years. Others are using it upon my recommendation, and find it a great success. It is simple, and easy to carry out, with very little work. The hive must be the right size. The one which I use I call my non-swarming hive. First, the beestand is made 18 inches wide and 28 long, of two pieces of 2x4 hemlock studding. The stand boards are nailed to these at its ends. The whole thing is then placed on four bricks which make it nearly 7 inches high.

The hive, outside measure, is 13 inches high, 14 wide, and 25 long. The brood part contains 16 frames about the same size as the Gallup. All of the frames must be used for the brood, and a good queen will fill nearly all of them early in the season.

The frames are made very easily and cheaply from $\frac{7}{8}$ white-pine lumber. The top and bottom bars are one-half inch thick. The sides are the same width, but

made one-fourth inch thick. The projections of the top-bars are eight-penny wire finishing nails. Frames made in this way are more durable. The bees do not stick them fast, and they cost less. The frames run crosswise of the hive. I make the hives so that there is one-half inch above the frames, and a little more than an inch below in the brood part. In the upper hives there is $\frac{1}{2}$ inch above the frames and $\frac{1}{2}$ inch below. The entrance is made in one of the ends of the brood part.

The comb-honey super has wide frames the same size as the brood-frames, except that they are two inches wide, and they are made in the same way with two wooden separators 5-16 inch thick and 4 inches wide, nailed to one side of the wide frame.

The sections are $1\frac{7}{8}$ inches wide on all four sides. A wide frame will hold 6 one-pound sections when well filled with honey. The sections will be longer up and down than they will be the other way. One super will hold 10 wide frames with 60 sections, or 12 extracting combs.

As a rule I have used the hive three stories high, and have not had a swarm from them in 25 years. During that time I have had but one swarm from two-story hives.

It is quite an easy matter to coax the bees to work in the sections in this hive by placing an extracting comb in the center of the comb-honey super. Comb and extracted honey can be easily produced in a hive of this kind at the same time. A section of honey can be removed as soon as sealed before the bees soil it by running over it. I have often had the two upper stories filled solid with sealed honey, and yet the bees did not swarm.

This hive should be ventilated at the bottom, when the bees are out of the hive, by putting a piece of thick lath under each front corner of the hive. This will give the bees a two-inch alighting-board on three sides. Shade the hives if they stand in the sun.

BY INTRODUCING YOUNG QUEENS.

In order to prevent swarming when small hives are used, all that is necessary is to remove the old queens and introduce young ones that have just commenced to lay. These small hives can be packed with sealed brood, and the bees will not swarm during the whole season, whether running for comb or extracted honey. These queens, too, as a rule, lay better than older ones. I prefer to raise the queens myself, and then I know surely that they are young, as this makes all the difference in the world. It is quite an easy matter to have a lot of choice and vigorous young queens reared by the time the swarming season begins. If the bees

have been properly wintered they should with good spring management be strong and vigorous in early spring, and the young queens reared from such colonies will be prolific. I have never had a swarm when I have used this plan. If the bees cluster out on the front of the hive, raise the hive and put a piece of thick lath under each of the front corners, and give more surplus room above, and shade from the sun. I keep plenty of thick spruce lath in my apiaries, and find it useful for many purposes.

Perhaps some one may wonder what I do with the old queens that are to be removed from the colonies. If the queens are good layers a place can be found for them. For instance, the old queen and two of the poorest combs of brood in the hive may be removed, together with a few bees, and put in another hive of the same color. The queenless part can be moved to a new stand some distance away. Put the hive containing the old queen and the two combs of brood with a little honey in the two combs on the old stand, and fill out with empty worker combs or frames of full sheets of worker foundation. All the field bees will return here; and by buckwheat time this part of the colony will be ready to gather surplus from this source if the season is a good one, provided they have been given proper summer management.

After two days, fill out the queenless part with large combs of brood about ready to hatch, and introduce a young queen that has just begun to lay. She will be gladly received by the bees. If honey is coming in, put on the super for either comb or extracted honey. The colony will not swarm that season; but extra ventilation may be necessary at the bottom.

BY REPLACING COMBS OF BROOD WITH EMPTY COMBS.

At the swarming season, when the bees are very strong and seem ready to swarm, open the hives and remove from each four or five of the best combs of brood almost ready to hatch, and destroy all queen-cells which are not needed elsewhere. Shake off all the bees from the combs into the hives. Care should be taken not to lose the queen. Fill out the hives, from which the brood was taken, with empty worker comb or frames of full sheets of worker comb foundation, alternating until the hive is full. Ventilate the hives at the bottom by putting a thick piece of lath under each corner at the front, and give plenty of surplus room at the top. Any colonies treated in this way will not be likely to swarm. Shade the hives if they stand in the sun.

The combs of brood taken can be given

to colonies having young queens just commencing to lay. Colonies having young fertile queens can be given a large amount of brood. You can fairly pack it in, and they will not swarm—at least this has been my experience for the last 34 years of continuous beekeeping.

This last method, combined with the second one, will keep bees in small hives from swarming, and both should be employed at the same time, as they are dependent on each other.

Troy, N. Y., March 26.

SHALLOW DUMMIES IN TEN-FRAME HIVES

Contracting the Brood-nest without Causing Swarming

BY LEON C. MILLER.

I have been using slatted dummies in my ten-frame hives the last two seasons, and find them a decided help. I have not tried to use them with the idea of stopping swarming entirely, but mainly to contract the brood-nest without causing the bees to swarm. I used them quite extensively this way last summer.

When the time comes to put on the comb-honey supers I go to the hive and remove any empty combs there may be (by empty ones I mean those not fairly well filled with either brood or honey). There will seldom be more than one or two, and many times none of these in the hive; but what there are I don't want left in there to furnish a place for the bees to store the honey that I want in the comb-honey supers. These I replace with the slatted dummies, and I find that bees so treated are no more inclined to swarm than those that are allowed to have their full amount of combs. On the other hand, if I put the ordinary solid dummies in the place of one or two combs it makes the hive just that much smaller, and just in that proportion has an effect in the tendency of the bees to swarm. Later, if I find it necessary to shake a colony I put the bees on about six frames of foundation, and fill the rest of the hive with these slatted dummies. A comb-honey super, filled with full-sheet foundation and bottom starters, *a la* Miller, or, better still, if there is one already partly filled from the colony before shaking, will make the work go on apace.

I think I shall try a few colonies this summer with two hive bodies, the frames alternating with the slatted dummies as described by Mr. Small on page 278, 279, May 1. I am not very enthusiastic about it, however, as I am of the opinion that bees work-

ed on that plan will not go above as readily as they should. I know they will not in a hive arranged that way without the dummies, for I have tried it. I experimented with a few hives that way one year; and when they had two stories fairly well filled I put on the supers; but instead of going right into it, as I expected them to do, they seemed to think they had honey enough, so they rested on their oars; and the consequence was I got very little honey those I worked on that plan. It may be that, with the slatted dummies, the queen will keep the frames better filled with brood instead of allowing them to be filled up with honey as they did for me, and this will have a tendency to force them up into the sections more. At least it is worth a trial, as I have plenty of the dummies on hand, and will not have to go to any extra expense.

I don't think it would pay any one to go into this plan of mine on a large scale, even though it might be a success, for I think it would be cheaper and much more satisfactory to buy the Aspinwall hive complete. But sometimes one might have the other equipment, and would not like to buy a whole new outfit, but would still like to make use of this principle. In this case I think it would pay very well either to make up or to hire made some of the slatted dummies to be used according to the plan I have outlined here, or as Mr. Small uses them.

Barryton, Mich.

FELLOWSHIP AMONG BEEKEEPERS THROUGH ORGANIZATION

BY HENRY REDDERT.

I received a letter from a beekeeper in Oklahoma in which he says, among other things: "I understand, after only two years' experience, that beekeepers are good brothers. I should like to get deeper into their fellowship." It sounds good. He is welcome. The first thing to do is to organize a beekeepers' association in his vicinity. Here is where good fellowship begins. Every county in every State where beekeepers dwell should have an association. Here is where they can make themselves at home, and a good home is the seat of good fellowship. Questions pertaining to beekeeping in all its phases may here be discussed at leisure. Good humor should prevail at all times.

In every country and clime where good men and women keep bees, good fellowship exists. This is an unwritten law. In a small town there is no need of a public hall to meet in. Halls are expensive. As little expense as possible should be incurred at

the beginning. In time if the association grows, which no doubt it will if managed properly, larger quarters may be obtained. At present any one's home will be a good place to hold a meeting, especially in small towns where everybody knows every one else. One meeting at one house, then in another, and so on as often as preferred, until each beekeeper's home has had a meeting, then starting again at the first one, works well.

Forage should be one of the chief topics discussed. Bee diseases, climatic conditions, the number of hives to be accommodated in a certain district, the different clovers best adapted to a given locality; honey-bearing trees, shrubs yielding nectar, various kinds of grapes, raspberry, blackberry, and honey-producing vines for shading porticos, laws governing the industry, and sweet clover sown in waste places, are all topics which should be considered. Each member should pay monthly dues for the maintenance of the association. A president, vice-president, and secretary-treasurer should be elected by the beekeepers; also an executive committee consisting of four or five members. Articles from bee journals may here be read and analyzed. The secretary is the business agent of the association. Through his energy and good will, many new additions can be made from time to time. From the president down, each one should do his part in booming good fellowship. Petty jealousies should be laid aside, and mutual assistance should be the slogan. With this in mind, good fellowship eventually will rule the beekeeping world. Cincinnati, Ohio.

SEVERAL INSTANCES WHERE STINGS RELIEVED RHEUMATISM

BY S. S. TALBERT.

I have read with interest the arguments, pro and con, in regard to the cure of rheumatism by stings. While I have never had any experience of my own, I have kept bees in a small way for a number of years, and have observed the effects of stings administered to others.

In the spring of 1909 a friend of mine was so badly afflicted that he could hardly walk, taking not more than about six inches at a step. His fingers and toes were badly drawn out of shape, and he was a good subject to work on. He had heard something about the bee-sting remedy, and asked me to apply it; so one morning I caught a number of bees, and we went to the office of Dr. Smith, of this place, and I applied stings to the patient in the places indicated

by the doctor (he keeping at a safe distance). We applied 24 stings on his feet, knees, shoulders, and hands. It made him very sick for a while; but on the Wednesday following, to every one's astonishment he could *run*, and went to his work that same day. He was perfectly cured, and remained so for two years, when it became necessary to repeat the treatment. We again used the same remedy, only we gave him a larger dose. As soon as the soreness from the stings was gone the rheumatism was gone with it. This man, Mr. Homer Parker, offered a number of times to write a testimonial to any one wanting it, but on January 28, 1912, he died of heart failure, following a bad siege of rheumatic fever.

The cashier of the Brownsburg State Bank had been suffering from rheumatism for 20 years. Two years ago last winter he got his *nerve* and *will power* screwed up to where he thought he could try the stings; so one day, when the bees were flying, I caught some and applied about 20. It made him very sick; but when the effects wore off, his rheumatism was gone.

I don't think any one should apply the stings except when there is an attending physician, as it seems to have a depressing effect on the heart; but I think any one taking this treatment should take enough to get a good heroic dose of it. I have never known any beneficial results to follow an application of two or three stings.

Another case that I have happened to know about where the pain was more localized than the ones I have just described, was a resident of this place. He was affected in the knees and ankles. I applied six or seven stings to his knees and ankles. It relieved him within a few days' time.

No. 4, another man of this place, had rheumatism in his feet. I applied five stings to each foot. After the inflammation from the stings was gone, the rheumatism had disappeared.

For the benefit of any one wanting to try the cure, I will say the best way I have found to handle the bees is to drop them into a basin of water; then with the thumb and fore finger you can pick them up by the wing, and your finger and thumb nail will protect you from the sting.

Brownsburg, Ind.

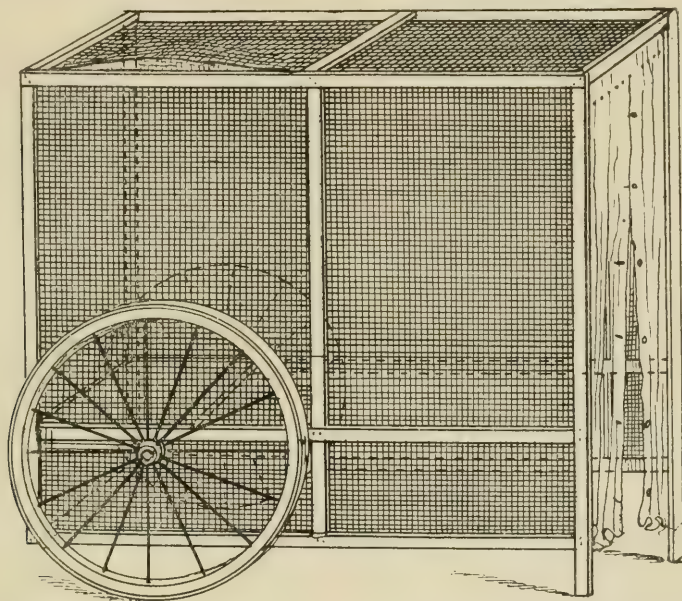
[We wish to repeat the caution given by our correspondent in regard to the importance of applying the stings to the patient when a physician is present; for it is a well-known fact that certain persons are so constituted that it would be dangerous to get as many as twenty stings at once.—Ed.]

Heads of Grain from Different Fields

A Bee-tent on Wheels

As I read Mr. Byer's article on finding queens, Oct. 15, p. 619, I fully sympathized with him in the task of examining 280 hives, finding five queens per hour—56 hours' work under a tent and on his knees. He and perhaps others may like to know how they may work more comfortably. I built a tent for this purpose, upon the axle of a pair of old buggy wheels, using a light frame covered with wire screen. The wheels carry the weight of the tent, so that I made it 3½ ft. wide, 6 ft. long, and high enough to enable me to stand upright in it. I fitted a wide shelf at the wheel end of the cage for tools, supers, etc.

At the door end, opposite the wheels, I hung curtains which could be fastened together while at work, or opened for the purpose of drawing the cage over a hive. The size of the tent gives ample room for work, and requires no getting on one's knees, creeping under the tent, depending on some one else to pass in tools or supplies, as every thing needed can be carried on the shelf.



I made the tent tight at first, but found trouble from the gathering of bees from different hives; so I made escapes by prying the wire cloth from the frame at intervals along the top, inserting pieces of lath to hold it open. The bees readily find these openings, while robbers busy themselves only around the sides, near the level of the tops of the hives, where they can obtain no entrance. A few get in at the doorway when the wind blows the curtains open; but finding themselves imprisoned they are more anxious to get out than to create disturbance.

The frame of the tent is about 8 inches from the ground, in order to clear clumps of grass or other small obstructions. The first season I thought I had to hang a curtain around the bottom, reaching to the ground. I have not found it necessary this year, although robbers have been on the *qui vive* for any point exposed.

Nearly every blacksmith shop and many farms have old buggy wheels and axles which may be obtained for this purpose. The framework need be only of 1x2-inch lumber, and screen wire is reasonably cheap, so that such a cage or wheeled tent is inexpensive, and the comfort of being able to stand upright while at work is worth all the labor and expense of making. Then when coming out of the tent the operator is not in the midst of the robbers, but several feet behind the hive, with his

head elevated above their line of attack, and not so liable to be punished for his doings.

The tent stands ready for use at all times, and I find it convenient in queen-raising to be able to go into it for operations which otherwise would have to be performed in the workshop. A waterproof cover would make it still more convenient in times of sudden showers.

Frankfort, Kan.

L. P. HOLMES.

How to Ship Bees; Water and Stores En Route

What is your experience in shipping colonies of bees long distances by water, Mediterranean ports to New York, for instance? Should they be supplied with candy or with honey? Are losses of bees likely to be heavy? Will sealed brood prove any disadvantage? In theory I believe that the frames should be filled with candy instead of comb and honey, and that they should be supplied with water; but I have had no experience along that line.

Lansing, Mich., May 20.

A. M. CLARK.

[Bees can be shipped by water as well as by rail with this difference: Transportation by the former is very much slower. Usually bees can be shipped by boat for very much less, for a given distance, than they can be sent by car; and where bees are not to be put out longer than a week or ten days we would ship by water, providing there was any object in the freight rates.

Sealed stores are very much better for shipping bees than any form of candy that you can use. We have tested out the candy very thoroughly, and our experience in shipping thousands of nuclei all over the United States shows most conclusively that natural stores of the bees (or, rather, sealed stores of sugar syrup or honey) are to be preferred to any candy that was ever devised.

Yes, it is very important that bees be given plenty of water on the route, but usually it is impractical to give it unless they go in a carload with a man accompanying. It would be unwise to ask the ordinary expressman to water the bees, as he would overdo the job and probably kill them. When bees go by express they have to depend upon the stores they get in their regular combs, unless they are shipped in pound and half-pound packages. In that case we necessarily have to give them candy.

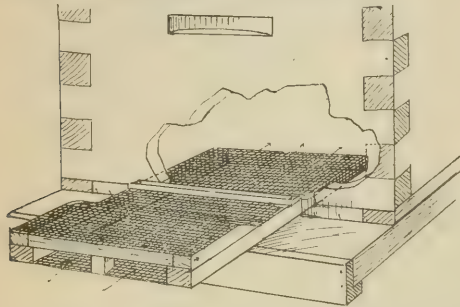
In shipping bees it is very important to put in the hives only sealed brood. The unsealed, unless

the bees are frequently watered, would be destroyed, as they will take up any moisture in the combs in lieu of water. We give quite full particulars on shipping bees in our June 15th issue, page 422.—Ed.]

A Device for Stopping Robbing Immediately

No device or method that will stop active robbing instantly and satisfactorily has been introduced to the beekeeping world. The spread of foul brood increases the danger of robbing, multiplies its hazard, and makes the need of a good combatant or anti-robbor device more urgent than ever.

Years ago I gave this matter attention. Time, with occasional experiences, has gradually unfolded to me a simple and effective remedy.



The device stops warring colonies immediately, and prevents the usual killing of bees. It neither encumbers the combatants by contracting the entrance nor by sprinkling with nauseous or poisonous liquid. Under such excitement bees need plenty of fresh air.

The entrance is to be placed against the entrance of the hive, and the other open end projects over and outside of the bottom-board. I fasten mine in case of robbing with screws or nails to the hive; but of course this method could be improved.

In a case where many bees rob a colony, and can not get in because of the device, they will soon go underneath at the end of the bottom-board, and with persistent efforts will press up and bulge in the wire gauze from beneath; and, if not securely fastened, the whole thing will be lifted up and give them access to the inside. But no matter how many bees are robbing inside, they will and must all pass through the device in order to go outside, and they will do it—in a hurry too. Then in three or four minutes the rightful inmates will be masters of the field, and will again guard the entrance. As soon as peace and order are established, the device is, of course, removed, and the entrance may be contracted if necessary; for, although bees never leave their home while the battle is going on, they soon resume their flying afterward, and then the device would prevent their return.

Escondido, Cal.

L. F. LEONARD.

A Stampede for the Pollen of Wild Carrots

Of our common roadside plants the wild carrot is only occasionally visited by bees. I do not remember ever having found a bee searching for nectar over the broad white umbels, and usually the yield of pollen is rather scant. Its apicultural value is, therefore, slight in this part of the country. It is not to this which I wish to call attention, but rather to that well-known trait of the bee, the habit of confining its labors to some one particular species, to the exclusion of every thing else for the time being, though there may be other plants in bloom at the same time, apparently just as attractive. An illustration of this came under my observation the past season.

About August 20 I found that my bees had run a line to the north of the yard; and, being too early for buckwheat, I was uncertain as to what the attraction could be. I found the line headed for a good-sized field covered with a dense mass of white bloom. Getting closer the blossoms proved to be those of wild carrots. The plants had all come up after having been mowed previously in the haying. Each cut-off stem had sent out a number of branches all about the same height from the ground; and

these in turn had each borne a small cluster of blooms.

It was a field of carrots to the exclusion of every thing else. The bees were there by the thousand. They were apparently getting pollen only. In doing this they scampered in a lively way among the florets, flitting from one cluster to another until the greenish-white pellets were completed and the start for home was made.

Scattered along the roadsides and in old fields elsewhere, innumerable wild carrots were growing, the flower clusters on which were uniformly much larger than those to be found in this field of perhaps ten acres. It rarely happened that a bee would be found on one of the plants outside of the field in question. There were no aphides in sight, and nothing to indicate the presence of honey dew. Apparently the ease with which the pollen could be gathered, from the close massing of so many blossoms, would naturally seem to be the best explanation for the general behavior of the bees.

At the time of the preference for the carrots, the bees had been visiting five species of mints besides climbing hempweed, jewelweed, and two species of *Eupatorium*—plants all regularly visited. These, however, were all abandoned in the stampede for the wild carrots.

Aiken, Md.

J. FORD SEMPERS.

Can Bees Recognize Playing-cards?

It may not be known generally that a deck of playing-cards would play an important part in mating young queens, so here goes the kink. I take any card in the deck, except the pictures, and tack it close above the contracted entrance of a nucleus for a sign-board; and when the queen takes her wedding trip she notes that particular sign, and never fails to return to the right hive.

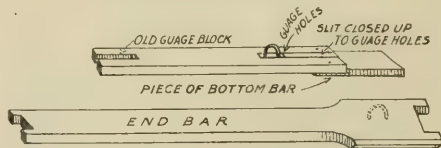
Monterey, Cal.

WM. A. SEDDING.

[While bees undoubtedly do recognize colors to some extent, we doubt very much whether they would be able to recognize one playing-card from another. They might distinguish a card that had all red on it from one all black; but as to whether they would be able to count the spots or to distinguish diamonds from hearts—well, we have our doubts. Bees are pretty smart creatures; but we can't believe they are able to distinguish cards.—Ed.]

How to Locate Quickly the End-spacing Staples

Perhaps some may be interested in my short cut for putting the end-spacing staples in place. I took the hard-wood block supplied with the frames, and cut one of the saw-kerfs 1½ inches long; then with a chip of section box, whittled thin, I stopped up all but 5-16 inch of the slit, leaving a hole for the staple. Then on the under side of the block I nailed, with ½-inch nails, a piece of bottom-bar, coming within ⅜ inch of the gauge hole.



I place a pile of end-bars on the table right in front of me, a saucer of staples, and a two-ounce hammer at my right; then I am ready for business. With the left hand I lay an end-bar in front of me, top to the right, bevel next to me, and lay the gauge on it with the stop piece, cut from a bottom-bar, in the notch. It fits loosely. The thumb and middle finger hold the end-bar steady, and the middle finger slides the stop into the notch and holds it there. With the right hand I pick up a staple, slip it into the gauge hole, hit it twice with the hammer, lift off the block, and throw the finished end-bar into a receptacle large enough to hold the whole season's supply.

It works like shelling peas. I soon wearied of handling both ends of a frame and maneuvering in an awkward corner; and, without thinking of the convenience of the bees, I saw that the staple would do better a little lower.

Florence, Ala.

H. A. MOODY.

Our Homes

A. I. ROOT.

The Lord gave, and the Lord hath taken away. Blessed be the name of the Lord.—JOB 1:21.

Buy the truth, and sell it not; yea, wisdom and instruction and understanding.—PROV. 23:23.

He will not always chide; neither will he keep his anger for ever.—PSALM 103:9.

DEATH OF WILBUR WRIGHT, THE OLDER OF THE WRIGHT BROTHERS, OF DAYTON, OHIO.

For the past half-dozen years or so the whole wide world has been discussing and reading in regard to the Wright brothers (and their flying-machines) more than, perhaps, any other two people on the face of the earth. In every clime and in every language people have been eager to learn all about the two young men who have succeeded for the first time in human history in making a machine that would fly, and carry passengers, purely by mechanical means without the aid of a balloon or any thing of the sort. In the March 1st issue of GLEANINGS for 1904 I first made mention of the two men, Orville and Wilbur Wright. It was in the fall and winter of 1903 that they first succeeded in applying a gasoline-engine to a gliding machine they had been experimenting with. In the summer of 1904 I wrote the Wrights, asking permission to pay them a visit and witness some of their experiments. This permission was kindly granted; but they preferred that I should make no mention through our journal of what I might see until later on. I made many visits to the field just outside of Dayton, where they were experimenting during the summer of 1904; and finally, in our issue for Jan. 1, 1905, I was given permission to write up what I had witnessed, this being the first detailed account, if I am correct, given in any periodical in the world of the experiments and final success of the Wright brothers.

It was my privilege to be present when they made their first flight of a mile or more, and turned a circle and came down to the place of starting. My write-up of the event was so astonishing that many people thought it was a piece of fiction to advertise our journal; and even so good an authority as the *Scientific American* did not see fit to credit my account, although afterward they apologized for their want of faith at first, in my plain and simple story.

In times past it has been my good fortune to become more or less intimately acquainted with some of God's noble men and women; and I shall always regard it as one of the privileges of my life that I was permit-

ted to become intimately acquainted with these two great characters (and I might say *benefactors*) of the human race. Wilbur Wright, the elder, was a little peculiar. Usually he was rather quiet and taciturn; but when he got agoing he was quite a talker. There was a peculiar twinkle in his eye, and an expressive working of the muscles of his face when a new idea occurred to him or when he had something pleasant to tell. While the two men worked together in perfect harmony, they often had lively discussions. Sometimes, one would think these discussions were becoming pretty nearly heated ones; but all of a sudden they would both stop and pitch into the work, and perhaps in a little while demonstrate *who* was right and *who* was wrong.

As Wilbur was the older of the two, for a time he seemed to do rather more flying than his brother Orville. I once asked their assistant mechanic which one of the two, in his opinion, was the more expert. He said he could not tell—sometimes one and sometimes the other. They first made quite a good many experiments by simply flying ahead in a straight line. Then the machine at that stage of the invention had to be wheeled back to the starting-place by hand. One day I came on the ground just as they had succeeded in making it turn a curve so as to fly at right angles to its course. They were getting ready to make another attempt; but a thunder cloud loomed up in the west, and they were about to abandon the experiment for the time being. As every thing was all ready for another flight I took the liberty of suggesting that they would have plenty of time to get around and get the machine safely housed before the blow would come up. In thinking of it since, I have considered that it was rather presuming on my part for me, an outsider, to offer such advice. Finally Wilbur, who was, I think, rather more venturesome than his brother, said *he* was ready to try it, and accordingly they started off rather hurriedly. Wilbur turned the curve at the end of the field, as before, and turned still another curve, and came around to the starting-place, where we expected him to alight; but to our great surprise and astonishment he went right on, over our heads, and was heading for a lot of telephone wires, thorn trees, etc. The other brother, the mechanic, and myself, were greatly alarmed. It was so long ago that I can not exactly recall the details; but for a time it seemed to us he

turned the rudder with the apparent intention of going over the obstacles and out of the field; but when he had sailed high enough to clear every thing the engine stopped, and the machine gradually slid back on the air, and alighted as safely and as gently as a feather, in their own field. We all rushed up to where he stopped, to see what was the matter. As I was considerably older than the other two, I did not get there in time to see what started the "discussion," but Wilbur was evidently considerably stirred up, and he and his brother were disputing rather hotly as to whose fault it was that he could not get the engine *stopped* when he came back to the starting-place. I finally interrupted the discussion by putting my hand on Wilbur's shoulder and remarking, "Why, my good friend, can't you stop long enough to look pleasant, and thank God for having permitted you *just now* to make the first flight since the world began, turning corners, and coming around to the stopping-place?" He looked at first a little vexed at the interruption, but finally his countenance softened, and that peculiar—I might almost say bewitching—smile spread over his countenance as he put out his hand and said, so far as I can recall, "Why, Mr. Root, I guess you are right; and I *am* glad and thankful that I succeeded, even if I could not get my engine stopped when I wanted it to stop."

I do not remember now what it was that made the engine keep going after the switch was turned off. I only remember that he put the blame on Orville, and I suppose it came about on account of the excitement of the moment in consequence of the thunder cloud, that caused the accident.

Later, after they succeeded in getting the machine to make circles in the air as long as they wanted to stay up, I made them a visit and happened to be there at the same time as Mr. Chanute, a man who had made experiments with gliding machines before the Wright brothers ever took it up. I believe he is still living, and that he is also, perhaps, one of the best authorities in the world on aeronautics. They were discussing finances. Mr. Chanute thought a *million of dollars* would be needed to put the invention on a sound financial footing. I remember I noticed the peculiar twinkle on Wilbur's face as he said something as follows:

"Mr. Chanute, I have no ambition to be a millionaire. So far as I am concerned, I think a hundred thousand dollars would be all I should ever have use for in this world."

And this was characteristic of the man.* When he crossed the water and went over to England, France, and Germany with their invention, crowds followed them everywhere—not only common people but the nobility, crowned heads, kings, and queens came to recognize and do homage to the Wright brothers of Dayton, Ohio. Well, in some foreign lands, as you may know, where they do not know or *care* when Sunday comes, Wilbur always paid respect to God's holy sabbath day, and several times the nobility (and, I think, once or twice members of the royal family, great lords and ladies) wanted to see the Americans and the American flying-machine on Sunday. Now, here comes a true test of courage and of fearless manhood. I use the word "manhood" in the best sense of the word. Wilbur Wright said gently but firmly that they had been taught to "remember the sabbath day to keep it holy," and kindly asked to be excused, not only from making any flight, but from exhibiting the machine on the generally recognized Sunday of the world. He added that, as soon as the day was passed, he and his brother would gladly and cheerfully be at their service. This has been heralded world-wide; and, no matter what *opinions* people may have in regard to sabbath desecration, I think one and all, good and bad, reverence and respect the memory of Wilbur Wright for standing up and living up to his honest convictions. I do not mean that his brother Orville was any less conspicuous in this matter than Wilbur; but Wilbur, being the elder, generally took the responsibility of being spokesman.

During my first visit, and while the Wrights were making application for a patent on their invention, there were certain things I was asked to avoid mentioning in print. On my last visit, Wilbur invited me to go over and see their great factory. This was described on p. 602, Sept. 15, 1910. On starting out I asked if I might be permitted to describe in our journal what I saw. Wilbur replied with that

*In connection with the above I may mention that the Wright brothers were many times offered considerable sums of money if they would exhibit their machine at State fairs or great expositions; but their invariable reply has been, "Gentlemen, we are not in the show business." The years they labored in perfecting their invention were not for the purpose of making money. It was to bless humanity. I suppose they recognized full well that an advertisement saying the Wright brothers would be present with their flying-machine would draw a bigger crowd than the mention of any other two men on the face of the earth. But they have never been and are not now catering to the curiosity of the crowds that frequent great fairs, expositions, etc. They felt and now feel, as I have tried to express it, that God was calling them in another direction.

same expressive twinkle, "Mr. Root, tell any thing you like, providing you *tell the truth*, and only the truth." How many proprietors of our American establishments nowadays would instruct a reporter of a magazine (who is writing it up) to avoid exaggeration or overstatement in his relation of what he saw? I mentioned this incident in my talk to our Bradentown Sunday-school, in Florida, and urged the youngsters, who were listening to my account of the flying-machine, in the language of our last text, to "*buy the truth and sell it not.*"

One day we were all out in the field with the machine while there was a cool north-west wind. Wilbur was in his shirtsleeves while I, if I remember correctly, had on my fur cap and overcoat. I urged him to put on his coat lest he "catch cold." He looked up to me with one of those smiles I have mentioned, and said, "Mr. Root, I shall not catch cold out here in this breeze. That is not the way people catch cold as a rule. They 'catch cold,' as you express it, by keeping themselves shut up in hot and poorly ventilated rooms; and perhaps they may take cold by going out from such places warmed by artificial heat; but people who live outdoors, as God intended they should live, do not take cold, even if they get to feeling a little chilly."

I believe this was his rule of life. A great strong man, full of life, blood, and energy, has been cut off by typhoid fever; and at least a part of the responsibility rests on you and me. "God will not always chide."

It was my pleasure several times to share their noonday lunches put up by that good sister Katherine. May God bless and sustain her in this great affliction. Well, their food was always plain, wholesome, and in keeping with their ideas about the importance of open air, etc. *Why* should he have been permitted to die when the world needs *such* men so much? "The Lord gave, and the Lord hath taken away."

I suppose the whole world knows that, while I write on this 31st day of May, 1912, Wilbur Wright is no more. He died on the early morning of Decoration day; but before the day was fairly closed, messages of condolence and regret came from those same foreign nations where they censured him but a few months ago, because he so firmly, as they put it, refused to fly on Sunday. May God be praised that such a man as Wilbur Wright has lived for 46 years to bless the world. His sad, sudden, and untimely death came from typhoid fever; and almost at the very time when the sad news reached us I had in my hand a little bulletin sent out by the Department of Agricul-

ture a few months ago, entitled, "How to Prevent Typhoid Fever."* As nearly as I can make out at this early date, he caught the fever while absent from his own beautiful sanitary home in Dayton.

In a recent issue I spoke of the way the Titanic disaster had taught us a lesson that the world could not be taught, perhaps, *without* such a loss of life. It has long been recognized, I believe, that typhoid fever is the result of ignoring well-known and sanitary laws. Is it possible that the loss of this good man, of so much value to the world at just this moment, is a part of God's plan to teach us not only to banish the *flies* that carry contagion, but to banish the filth that is feeding the flies even around farmers' homes, enabling them to increase and multiply? This bulletin I have been speaking of, says typhoid fever is more to be dreaded than smallpox; and may God help us to learn from this lesson what he is striving to teach us. When these government bulletins are furnished free, and when our farm papers, daily papers, and magazines are exhorting us, and we *still* sit down with folded hands, shall we not consider out text, "He will not always chide"?

*Another recent bulletin is on my desk entitled, "House Flies," and it has considerable to say in regard to the "typhoid fly," and the way in which the common house fly carries the typhoid germs. In fact, Prof. L. O. Howard says:

The insect we now call the "house fly" should in the future be termed the "typhoid fly," in order to call direct attention to the danger of allowing it to continue to breed unchecked.

"THE TITANIC DISASTER."—HAD GOD ANY THING TO DO WITH IT?

A. I. Root:—I have just reread your last *Homes*, and want to thank you for your brave strong words. Surely some of your conclusions regarding the Titanic disaster are worthy of world-wide notice. Some Bible-reading people have said, "God had nothing to do with that calamity." Strange to me is the fact that a great ship going swiftly *west* should meet an iceberg going south at just the right moment, at the exact danger-point, with a smooth sea, near the midnight hour, where the water is two miles deep. Could men or angels or even *demons* be more skillful? The mystery seems to be unraveled when we read the various bits of testimony you have gathered. It was a terrible lesson to the world—*yes*, a *costly* lesson; but we may conclude that God does not undertake wealth as of much importance when he undertakes to teach the nations of earth a lesson.

I want to bid you Godspeed in your efforts as a writer. I think I can understand your interest in the *important* things of life. I have felt a tendency that way for some time; and a few lines of verse, written years ago for the *Day Star*, have come to mind with seemingly greater force and deeper meaning as the years slip by faster and faster; and many things seem now of less value than formerly.

OUR GREATEST NEED.

We want the power to choose the proper word—
Power to make our whispers heard:
Indeed, we covet, we desire
A pen of flame like torch of fire
To carry light and blaze and heat
To every soul we chance to meet—
Power to shield our youth from sin;
Power a *million* souls to win
To Christ, the Savior, Prince of Peace,
Whose reign begins when wars shall cease,

For power these principles to teach
To every soul we chance to reach.
Dear friends, when next in prayer you plead,
Remember this—our greatest need.

I was pleased to note what you have to say about voting for men in public place who wish to guide the great ship of state. Surely 'tis time to draw the line. See the Roosevelt edition of *Clean Politics*; and editorials in the *Outlook*. For myself I deem T. R. one of the most dangerous men before our

people. His military sentiments and cowboy cruelty will leave a great stain on the churches of the world that will not soon be removed.

Well, cry aloud and spare not. The old prophets are not any more popular than they used to be; but I am glad to believe they have *still* a message, and a goodly number are willing to hear and heed it, and some of the prophets will bring forth their *best* fruit in old age.

May the Holy Spirit lead you ever.

Boulder, Colo., May 23.

A. F. FOSTER.

HIGH-PRESSURE GARDENING

A. I. ROOT

CHUFAS, OR EARTH ALMONDS.

Perhaps some of the friends will wonder if my enthusiasm has all evaporated in regard to the above ground nut. Not at all; but my enthusiasm for 100 bushels an acre has received a severe shock. Down in Florida, I had a yield in spots that might have been thirty or forty bushels to the acre. Here in Medina (see picture, page 598, Oct. 1, 1911) the fine stand I had was frozen out during the past severe winter. The reason I did not dig them before I went to Florida was on account of the prevailing wet weather. We dug a few; but the task of picking and washing them out of the mud was, I decided, more than they were worth, even if they did bring \$4.50 a bushel. And by the way, there is one drawback in growing chufas; and that is the difficulty of harvesting them. Suppose you had a lot of white beans scattered all through the ground like potatoes. How could you harvest them? how much would it cost? In the Florida sand it is quite a little easier; but even then they have to be hand-picked, so far as I can see, in order to have a clean crop.

Well, I am just as fond of roasted chufas as I ever was. There is no nut to compare them with for myself. We had a good many that were self-sown, or "volunteered," as some would call it, in Florida; but the moles or mice, or something else, ate up a great part of them before we got around. Now, in view of the above, imagine my surprise to see the following in Hastings' (Atlanta, Ga.) seed catalog:

The South buys more than a hundred million dollars' worth of meat every year. How many of your dollars help swell that enormous meat-bill? With chufas and peanuts you can grow meat just as cheaply as the Western farmer. Chufas can be planted as late as June 15, and make anywhere from 200 to 1000 bushels per acre, maturing in the fall, and can be left in the ground until you are ready to turn the hogs in on them. Highly recommended by the experiment stations of Alabama, Florida, Louisiana, and Arkansas. Exceptionally plump, sound, re-cleaned seed. Pound, 35 cents postpaid; peck, \$1.25; bushel (44 lbs.) \$4.50.

What do you think of the above—1000 bushels per acre? If they were all sold at \$4.50 they would bring \$4500. Surely that amount would pay for fertilizer *ad libitum*,

the best kind of underdrained and irrigated soil, and plenty of labor. Will the readers of GLEANINGS please tell me if they ever saw, not 1000 bushels, but even 100 bushels grown on one acre? The above advertisement is clipped from the *Southern Rural*. They recommend chufas for producing pork cheaply. Of course the hogs would do the "harvesting," so all the farmer would have to do would be to raise the crop. I did not know but they might stand freezing like artichokes, so they could be dug in the spring. I know they sometimes winter over in the ground here in the North, because I have seen them coming up the following spring where they were grown the year before. I am going to write Hastings and ask if the printers did not put in one cipher too much in the above estimate.

SWEET CLOVER FOR INOCULATING SOIL WHERE
EITHER RED CLOVER OR ALFALFA IS TO

BE GROWN.

Mr. Root:—I have just read about sweet clover in your May 15th issue. Nothing was said concerning inoculation of the soil with bacteria suitable to sweet clover. Several years ago I sowed red-clover seed in the corn in July, and got a fine stand. A strange plant (strange to me then) showed itself quite plentifully among the clover plants. This plant proved to be alfalfa, and came because in some way the dealer from whom I purchased the seed had gotten the two kinds of seed badly mixed. The alfalfa grew and thrived best near the road. The further away from the road, the less alfalfa. The road alongside the field has grown wonderful crops of sweet clover for a very long time. A young neighbor, who has lately taken a short agricultural course at Champaign, Ill., told me the reason the alfalfa grew best near the road is because the dust from the road blew into the field and inoculated the soil best near the road; and the further away from the road, the less inoculation. The soil bacteria for alfalfa and sweet clover is one and the same.

Peru, Ill., May 21.

E. H. WHITAKER.

Friend W., you have furnished us a highly important fact. Our Ohio experiment station at Wooster has for some time recommended getting soils from the roadsides where sweet clover grows, to inoculate fields for alfalfa. I have just been looking at about the finest stand of sweet clover I ever saw. It is on a piece of ground near our largest warehouse, where hard yellow clay was spread, that was taken out in excavating a basement. This hard yellow clay would ordinarily not grow any thing at all,

unless, indeed, a heavy dressing of stable manure was worked into it. But without any dressing whatever it is just covered with about the rankest growth of sweet clover I ever saw. The clover is now about three feet high (May 30). We propose to cut it with a scythe for our horses and cattle. I thought at first some member of our firm had directed the sowing of sweet-clover seed; but they all say they did nothing of the kind. Sweet clover, however, has been growing for years along the bank of a railway cut, a few yards away. The wind probably scattered the seed more or less over this freshly moved hard clay soil. The seed must have come up and made some growth last fall, but it was not noticed. Now, this hard, impervious clay was just the place where the sweet clover could clinch its roots preparatory to pushing straight down that heavy thick tap root. See page 323, May 15. Just here I am reminded of something funny that happened several years ago.

JADOO FIBER FOR GROWING POTTED STRAWBERRY PLANTS; WHY WAS IT GIVEN UP?

Many of our readers will remember that several years ago I was enthusiastic about growing strawberries in little pots filled with jadoo fiber. This fiber is so light that it can be readily sent by mail, with sufficient moisture to keep the plants in excellent condition in transit. You may recall that we did quite a little business one fall in mailing these potted plants in jadoo.

I felt sure it was going to be a great invention. What was the trouble? It was this: We planted out several hundred in our own fields, and they started off so finely I expected a great crop from them. Imagine my surprise and chagrin, however, to find in the spring every potted plant set in jadoo out on top of the ground, and winter-killed, while those potted in clay or common garden soil stood the winter all right. The jadoo is so soft and yielding that the roots could get no hold on the soil, and every plant was thrown out by the frost. Had the jadoo been all washed off from the plant when first put in the open ground, so the roots could get a new and firm hold in ordinary soil, they would, perhaps, have held their own. Now, this illustrates exactly what happens when sweet clover is sown in good mellow fertile soil—that is, soil good for other crops. But when the seeds are dropped on the hard roadside or in a brickyard or on a railroad bank of hard unfertile clay, so it can get hold and push down that tap root, then it winters all right. The hardest, most unpromising, and impervious soil seems to have stood it the best.

Just a word more about jadoo fiber. Several have inquired lately why it is not now

manufactured and in the market. I believe that florists ceased using it first, because it was too expensive; and, second, because the plants seem to need, sooner or later, a stronger and more compact soil to grow in. I still think, however, that where plants are to be sent by mail, and have them reach the purchaser in good order, it is the best thing ever invented for the purpose.

POKEWEED FOR GREENS; GOLDEN BANTAM SWEET CORN.

Mr. Root:—I have just read of your latest new discovery, i. e., that pokeweed makes good greens, and believe you should, if possible, add a word of warning in your next issue. There is considerable poison in the root of poke, and in gathering it one should be careful to break the young shoot an inch or so above the root to avoid the possibility of getting any of the toxic properties. Some have been poisoned by carelessness in this matter. Poke was common in my former home in western Ohio, and used for greens by many farmers' families, but was not generally liked when cooked alone, being too soft and slippery. But when used with dandelions, dock, chard, liveforever, turnip-tops, etc., it was quite popular. Please tell us more definitely how to cook it as was done by your Florida neighbor. This may be the new discovery.

In my old home in Ohio, what was called poke was a large weed, one to two inches in diameter at the base, three to five feet high, and with berries in clusters like currants in late fall, and into the winter if not eaten by birds. This was eaten as greens only when the shoots were young, never when more than about eight inches high. Here a very different plant is poke, one which grows in boggy places in company with skunk cabbage, only a foot or two high, leafy like cos lettuce, and claimed to be very poisonous. What is called poke in Ohio (and Florida, I presume) is here called "skoke." The berries are often called pigeon berries. Now, if your statement on page 288, that poke, a supposed poisonous plant, is delicious when served as asparagus induces any one to eat this Log plant it may result in serious sickness or even death, and, if possible, a correction should be made in your May 15th issue.

It is quite odd how plants and things generally are called by different names in different sections of our country. What is called dog-fennel in Ohio is here called Mayweed; lambquarter is called pigweed; hickory trees or nuts are called walnuts; shafts are thills; singletree is whiffletree; doubletree is evenier; but about the most peculiar provincialism here is calling a wagon a team.

Is it possible you have not learned that Golden Bantam sweet corn is much the hardiest, and may safely be planted while the ground is far too cold and wet for any of the white sweet corns? If so, you surely do not read your seed catalogs carefully. I am sending herewith leaves from some of the 1912 catalogs, on which I have marked the statements about the hardness of this variety.

Packer, Conn.

E. P. ROBINSON.

Thanks for corrections, friend R. The pokeweeds that we gathered in Florida were simply snapped off like asparagus, usually several inches above the surface of the ground. It is cooked exactly like dandelion greens. I supposed, without making inquiry, that they were simply boiled in water.*

You are probably correct in regard to the Bantam sweet corn, and I take pleasure in submitting to our readers the following extract from Burpee's catalog. I be-

*In consulting our dictionaries and encyclopedias of recent date I find pokeweed, but no mention of pokeweed, although it is true here in Ohio we have always been in the habit of calling it skokeweed.

lieve most seed-dealers now usually carry the Bantam in stock.

This corn is becoming each year more firmly fixed in popular favor because of its *extremely early character, vigorous growth, and surpassingly delicious flavor*. We have had hundreds of most enthusiastic letters from customers, giving it the highest praise as the *finest extra-early sweet corn* they have ever grown. Although the dry grain is entirely free from any flinty glaze, it is exceptionally hard and firm, hence can be planted *earlier* than any other *true sweet corn*. The stalks are dwarf and sturdy in habit, growing to a height of four feet. They bear two and three fool ears, which are set well above the ground. The ears, five to seven inches in length, have eight rows of broad yellow grains, extending to the extreme rounded tip.

We first grew this Golden Bantam in northern Michigan, close by the "cabin in the woods." Since then we have grown it every season, and recommended it to the rest of the Roots and our neighbors; and we all agree with what is said in the above extract. By the way, I think we owe a vote of thanks to that enterprising seedsman, W. Atlee Burpee, not only for the Bantam corn, but for the many other good things he has given us.

POKEWEED "GREENS;" STILL MORE ABOUT IT.

My father tells me that fifty or sixty years ago he remembers eating pokeroot cooked as greens, but is under the impression that, if gathered in certain seasons, it is unfit for food.

My wife tells me that when a girl her mother cooked pokeroot. The earliest shoots alone were used, the shoots being peeled and parboiled to extract the poison, and afterward cooked and eaten as asparagus.

Mrs. Hamlin thinks that, if left too long before gathering, poke is poisonous. This is as explained to her by her father. I have not felt like having my family use the plant, not knowing enough about it, and I should be pleased if GLEANINGS would tell us how it is cooked for the table, when it is best to gather it, etc.

Pittston, Pa., May 8. P. M. C. HAMLIN.

Later.—I just now find the following in the *Rural New-Yorker*:

FALSE HELLEBORE.

This has very bright green stemless plaited leaves, coming up in thick tufts in spring. It is very distinct, but is occasionally gathered with marsh marigold, and boiled for spring greens, with fatal results. The plant, botanically, *Veratrum viride*, is also called Indian poke, wolfsbane, devil's bite, and bear corn. It must be remembered that vegetable poisons are very variable in character, and individuals also differ in degree of immunity. The deadly upas of Java may be handled with impunity by a person who would be blistered by an innocent little Himalayan primrose.

From the above I gather, as I before intimated, that there *is* some plant (may be Indian poke) resembling pokeweed; and this plant is probably responsible for the poison.

TOBACCO-GROWING IN OHIO; SHALL WE ENCOURAGE OUR BOYS TO ENGAGE IN THE INDUSTRY?

As a rule, I feel happy to get a new farmers' bulletin—especially one that emanates from our Ohio Experiment Station; but just now I am greatly pained to receive a nicely written and printed pamphlet, purporting to come from our Ohio Experiment Station at Wooster, with the heading, "To-

bacco-growing in Ohio." I have carefully scanned each of its nearly hundred pages to see if I could find a single sentence even remotely touching on the benefits of tobacco-growing to the people of the State of Ohio, especially to our boys and girls. This bulletin holds out no incentive to the industry except the *money* there is in it; and, if I am correct, the summing-up does not show that the profit is any more than that from growing corn, wheat, and potatoes, if as much. I happen to know (may God be praised) that the experiments with the tobacco plant are not conducted on the great farms at Wooster. When the Board of Management wished to have tobacco included in a list of farm products, there were at least two farm professors, and I do not know how many more, who objected; therefore the tobacco industry is conducted at some of the sub-stations in different parts of the State. I could not discover from the bulletin just where. It is a grand and glorious thing, this matter of introducing, even in our public schools, lessons in agriculture, and teaching our boys and girls to be expert in growing good and wholesome food for a hungry world; but (God help me while I say it, to have nothing but love and charity in my heart) who is there that *dares* to stand before our people in public or in print, urging that progress in growing tobacco will be a benefit to the coming generation of boys and girls? Of course, tobacco culture would include as a side issue the manufacture and sale of cigarettes. Let me give you a clipping right here from that grand little monthly, the *Philadelphia Farm Journal*:

STAMP IT OUT!

Judge Burke, of Chicago, has stated, "Our laws and times would not tolerate for one single moment the cigarette evil if the desolation which it works could be fully realized."

The *New York Journal* recently printed the following facts:

It is estimated that from 1200 to 1500 boys begin smoking every day.

Bad habits are the starting-point of criminal careers. Crime is keeping pace with the cigarette habit. Ninety per cent of youthful offenders are cigarette-smokers.

Students' mental and physical efficiency is lowered by smoking.

Tuberculosis fatalities are greatest among cigarette-smokers.

The cigarette is considered a key to the insane asylum.

Most school dullards and truants are cigarette-smokers.

The cigarette torch imperils life and property everywhere.

Eleven States have prohibited the manufacture and sale of cigarettes. Prohibitory laws are upheld by the United States Supreme Court.

All right-thinking people demand the extermination of this pest of society. Will you, boys, do *your* part in helping to stamp out the evil?

And, by the way, may the Lord be praised that our agricultural periodicals, almost if not quite without exception, are holding up a high standard of morals for these same "coming boys and girls."

POULTRY DEPARTMENT

A. I. Root

"NATURAL-HEN INCUBATORS," ETC.

Below are two advertisements that I clipped from poultry journals, and which I have decided to insert here without charge.

MARVELOUS! INCUBATOR WITHOUT LAMPS; USES NO OIL—BIG HATCHES.

A 200-egg size *Natural Hen Incubator* for \$3. Most successful for 10 years. Patented in U. S. and foreign countries. Hen herself controls heating, turns and airs eggs—does everything. No expense of heating. *Agents wanted.* Write for catalog to-day. Big money.

Natural Hen Incubator Co., 1349 Constance St., Dept. 4, Los Angeles, Ca.

200-EGG HATCHER, \$3.00.

Why pay \$20 or \$25 for a 200-egg hatcher with only a five-year guarantee, when you can now get one for \$3 guaranteed to hatch every hatchable egg and last for 50 years! This wonderful invention is called the PARADISE HATCHERY, which is pronounced by all to be the greatest hatcher for producing strong livable chicks ever invented. You'll say the same after you see and use one, and you'll wonder how you ever got along without it. Do you want to eliminate all your hatching troubles, and experience a successful hatching season? My free circular contains information that will put you right. Write at once.

Elmer S. West, box 30, Ewing, Ky.

Please notice that each one of them offers a 200-egg incubator at \$3.00. Well, on investigation you will find that both parties have no incubator at all to sell, and never did have. What they have to sell is a single sheet of paper, and you are to pay \$1.00 for this sheet of paper when you ought to have for the money a good-sized book, at least fairly well illustrated, of their invention. The first one of the two, hailing now from California, has been running this business for perhaps a dozen years past; and although I have shown the parties up through GLEANINGS every year or so, yet it seems they still succeed in raking in sufficient dollars from the innocent and unsuspecting to keep on advertising. I have remonstrated with the poultry journals; but many of them seem to think that, as long as they get *pay* from the advertisers, nothing more is required. What these fellows have to sell is a description of an apparatus to hold a dozen sitting hens or a smaller number. A hen's nest, with a little doorway attached to keep the hen from straying away, or from being annoyed, is as old as the hills; and a group of these nests, with their little dooryard of poultry-netting or lathwork, is almost as old. It has been described and pictured in our farm journals time and again in years past. Very likely the venders have some sort of patent right on some detail of the construction of their apparatus. In years gone by, I have sent a dollar for it every little while to see whether any improvement was being made—that is, for the California machine. I

admit they have some satisfied customers, because there are many people who have never seen the arrangement and do not know that it has been for years before the public. The latter one of the two advertisements, coming from Louisville, Ky., is a copy, as I take it, of the California arrangement, notwithstanding he says in his advertisement:

HAVE NOT BORROWED.

Don't imagine for a moment that my invention is like other inventions or "poultry secrets" that are now being advertised and exploited in poultry journals throughout the country; for it is *entirely* original, and unlike any hatching device thus far produced; and I control the sole right of this wonderful invention; and all persons infringing on my rights will be vigorously prosecuted.

Once more, the second man says:

SIMPLICITY AND PRACTICABILITY.

The Paradise hatcher is so simple in its construction that any person who can drive a nail and saw a plank can, by following our simple written form of instructions and descriptions, together with the plain illustrations, easily construct a hatchery in a few minutes' time, at a very small cost.

Now, notwithstanding he says any person who can "drive a nail or saw a plank" can make the thing "in a few minutes," I do not believe that the average carpenter can make one in a whole day—that is, if he has to saw out the stuff and nail it together. In fact, I am not sure he could make one at all with the meager diagrams furnished, without the assistance of some poultryman; for although I have spent considerable time in trying to cipher it out, I am not sure I could tell how to make one at all from the directions.

The directions that were sent me for my dollar were evidently *printed* wrong. The figures are marked out, and different ones put in with pen and ink. Once more, you will see by the advertisement that he sells the 200-egg hatcher for \$3.00. Now, the bill for lumber and material *alone*, according to his own figuring in plain printed instructions, is \$4.00 for a 200-egg 12-hen hatcher, to say nothing about nailing up and painting. Once more, both parties make a big point of no expense for lamp, oil, etc. But how about the expense of a dozen sitting hens, keeping them from throwing up their jobs, watching the eggs when they happen to break them, keeping out vermin, etc.? If this sort of advertising is not using the mails for fraudulent purposes, then I am mistaken.

Just one thing more about the natural-hen incubator. Even after you have read their "spread-eagle" advertisements you

may not be tempted to send a dollar right off, but wait a while. In about ten days you will get something additional, saying that, for some special reason, they have concluded to cut down the price to 75 cts. But if you still delay, a little later comes an offer for the small sum of 50 cents for a "full individual right," and a lot of valuable recipes thrown in; and I think, although I have not now the documents on hand, that still later they come down to 25 cents. And this is a fair illustration of a lot of schemes to get your money by some hook or crook. Whenever any advertiser, after a few days, begins to cut down his prices, look out for him. See what I have said about the "memory school" on page 23, advertising pages, May 1.

Since dictating the above, the *American Poultry Journal* for June has come to hand, and in it as good an authority as Prince T. Woods, M. D., describes and pictures an incubator which is substantially the same thing as mentioned above. Below is the opening paragraph:

Would you like to build an open-air incubator, one that can be run out of doors from the middle of March until late in the fall, one that costs only about \$1.50 per 150-egg capacity, labor included, one that hatches by the natural method, and will hatch every hatchable egg that a good sitter can hatch? If so, build and try a Wozelma open-air natural incubator, ten-hen capacity.

You can easily build one from waste lumber, a little wire netting and roofing fabric, by following dimensions here given, and using the illustrations from photographs for a guide. Ours holds 150 eggs, fifteen under each hen, ten compartments, a sitting hen in each compartment. It costs about 75 cents for material and less than two hours' labor.

The description of how to make it occupies something more than a full page, including four excellent photos of the sitting-hen incubator in actual use. Please notice what I have said about the sitting hen giving larger fertility than the average incubator, or perhaps any incubator. There is no question that these things are a success if properly made and handled. But think of charging a dollar for the crude directions, few or no illustrations, on a single sheet of paper, when the whole thing is given by an able writer and an expert poultry-keeper in one of our poultry journals!

Still later.—In the *Poultry Tribune* for June our good friend Mrs. Mattie Webster writes as follows:

I think the most convenient and greatest labor-saving device is the "hatcher," where each hen may have her individual run where she may exercise, and there have placed food, water, and grit. We have one of thirteen nests and runs, and you may be sure the first thirteen broody hens are always set in this hatcher.

Still further, I just now discover that in the frontispiece in that valuable little book, "Poultry Secrets," is a collection of nests for sitting hens with a latticed dooryard for each hen.

BLOOD-STREAKED EGGS, ETC.

I should very much appreciate having you request your poultry department to advise me of a remedy as well as suggest the cause of the following affliction which seems to affect a few of my hens. Occasionally a hen will appear to be suffering from an internal hemorrhage which lasts for two or three weeks, and which is evidenced in the form of bloody piles. Perhaps it is due to the food, or some germ of disease.

Chicago, Ill., May 30.

C. F. CHILDS.

My good friend, I regret that I am not able to suggest a remedy; but very likely some one who reads GLEANINGS may be able to give us help. I had one hen in Florida whose eggs were streaked with blood more or less. On examination I found about the same conditions you mention. I put her off by herself, and gave her a diet principally of bread and milk, and she recovered. Whether the treatment had any thing to do with the recovery or not I am unable to tell. Where a large number of fowls are kept I believe it is often the case that there will be occasionally an egg that has marks of blood on it as I have described.

INDIAN RUNNER DUCKS.

The May number of the *Pacific Poultryman*, Seattle, Wash., is a "duck number," and principally devoted to the Indian Runner duck. There is a large number of contributions from those having tried the Indian Runners, and every one gives a favorable report in regard to them. I am not surprised to see a special number of this poultry magazine devoted to the Runner ducks; and I shall not be much surprised to see a journal started very soon, all devoted to the raising of Runner ducks. The objection has been raised that the Runners are large eaters. Here is what one of the writers in the above journal says in regard to it; and the statement accords most emphatically with my own experience.

They are large eaters; yes, but they make every bite they eat count to good advantage. Besides, they eat cheap food, for one half their feed may be green feed.

Give them plenty of green food that they like, such as lettuce, mustard, dandelion, or even good fresh grass, and you will save half the grain needed, or more.

THE SITTING HEN AHEAD OF ANY INCUBATOR FOR STARTING FERTILITY.

I make two clippings from the *Poultryman* in regard to this matter.

I am convinced that no incubator will start all the fertile duck eggs.

The hen is the best incubator, and, if possible, eggs should be given to hens for a week or ten days before placing them in the incubator.

Will not our experiment stations test this matter thoroughly with our best incubators? It is certainly an important matter to be settled, and the experiment stations of our different States, being unbiased, are the proper ones to settle it.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, O.

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NO. 13

Editorial

PLEASE send in postal-card reports, of one or two sentences, telling what the prospects for honey are this season in order that we may make up a general report for the entire country.

OUR cover picture for this special issue represents an extracting apiary toward the close of the honey-flow, with the full supers stacked up four and five high. Talk about a refreshing sight for tired eyes! Is there any sight that is grander, to a beekeeper, than a nicely kept apiary of "sky-scraper hives"? This picture was made from one of Mr. Hutchinson's old negatives. We have now used ten of them in all, as cover pictures for the following numbers—December 15, January 15, February 1, February 15, March 1, March 15, April 15, May 15, June 1, and July 1.

PROSPECTS FOR THE HONEY CROP THIS SEASON.

If it had not been for the terrible losses of the bees over the country last winter and spring, indications are that this would have been one of the best honey years ever known. As it is, in many parts of the country, especially the clover districts of the North, bees are booming. Tons of nectar will go to waste this year because there are not enough bees to gather it. In the vicinity of Medina, at least, we are having one of the old-fashioned heavy yields from clover; and at this date, June 25, we are having to extract in our queen-rearing apiaries—something that we are almost never obliged to do. We have five outyards besides the home yard. All hands are busy giving room and extracting. With white and alsike clover in their prime, and basswood just beginning to bloom, and with a greater abundance of sweet clover than we have ever known, the prospect certainly looks very bright for honey at Medina. We have learned not to be too hopeful, however, for "there is many a slip 'twixt cup and lip."

FIVE-BANDED OR GOLDEN-TO-THE-TIP YELLOW BEES; DO SUCH BEES ACTUALLY EXIST?

THERE has been considerable correspondence between the breeders of extra-yellow bees and this office as to what constitutes five-banded stock. Some breeders, evidently, have been counting the dark segments as well as the yellow ones to make up the five bands. Others say there is no such thing as an all-five-banded colony, and that they have never advertised such bees. Others say that it is impossible to breed *bees* that will show yellow to the tip—that is, bees having abdomens entirely yellow without any black showing at all. We are inclined to believe that this statement is entirely true. It is an easy matter, comparatively, to produce *queens* which will have abdomens that are entirely yellow, and it is comparatively easy to produce *queens* that will produce *drones* that are yellow all over; but we have yet to see any queen that will produce yellow-all-over *bees* to the extent of ninety to ninety-five or even one hundred per cent of the entire bees of the colony. It is our opinion that, where a breeder advertises five-banded bees, he should furnish exactly that kind of stock—that is to say, queens that will produce five-banded to the extent of ninety per cent of the whole colony. Queens that will produce bees ten per cent five-banded, fifty per cent four-banded, and forty per cent three-banded, do not come up to the standard by a long way, if we are any judge. We do not think there is one of our queen-breeders who has a desire to misrepresent in his advertising in the least. A part of this confusion in advertising has come about through a misunderstanding as to what constitutes yellow-to-the-tip bees or five-banded bees. An advertiser can advertise truthfully yellow-all-over queens or queens that will produce yellow-all-over *drones*. The public should understand, however, that not the color of the *drones* nor the color of the queen constitutes the color of the bees themselves. A

queen may be yellow all over, and produce perfectly black bees. Conversely, a queen that is almost black may produce bees that are very yellow. We have seen this time and time again. The color of the queen is no criterion of what the color of the bees will be, although as a rule an extra-yellow queen, if she mates with an extra-yellow drone, will produce her kind. But an extra-yellow queen, if she mates with a dark drone, will produce all colors of bees ranging from dark to very light yellow; or she may produce miserable-looking hybrids because the bees take after their father. As is well known, all offspring, whether insects or animals, will resemble the father or look like the mother, and sometimes both.

Again, we find that there is some confusion as to what the term "golden" means. One breeder takes the view that it implies "yellow-to-the-tip." Others seem to give it a more flexible scope, meaning four and five-banded bees, or bees that are much more yellow than ordinary three-banded stock. When we refer to a "golden sunset" we may mean a beautiful ball of fire fringed with red and white with a predominance of golden yellow. In the same way we would say that "golden Italians" are nothing more than extra-yellow Italians—bright pretty bees with three, four, and five bands all in the same hive. In other words, a colony of goldens should show much more yellow than the ordinary stock.

THE NEW COLORADO COMB-HONEY GRADING RULES.

ALONG last December the Colorado Beekeepers' Association, one of the most influential organizations in the United States, adopted a new set of grading rules that in many respects are a decided advance over any thing that has been proposed heretofore. Not only the rules but the general suggestions on grading are worthy of careful reading by our Eastern beekeepers as well as those of the West. Here are the rules, together with the suggestions for grading:

NEW HONEY GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood; honey white or very light amber; comb and cappings from white to slightly off color; comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped, except the outside row next to the wood; honey, comb, and cappings from white to am-

ber, but not dark. Wood to be well cleaned; no section in this grade to weigh less than twelve ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to the wood, weighing from ten to twelve ounces; also of such sections that weigh 12 ounces or more and have not more than 50 uncapped cells all together, which must be filled; combs and cappings from white to amber in color but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened, and well strained. It may be put up in cans that previously have contained honey.

GRADING INSTRUCTIONS.—The aim of establishing grading rules is to secure uniformity in the methods of packing and grading, and thereby make it possible to put on the market a product of such excellence that careful buyers will pay top prices for it.

A few brief directions are deemed necessary to the parties doing the actual work of preparing, grading, and packing.

In removing filled supers the smoker must be kept well filled so no ashes will spot the cappings. Robber bees must be kept from them; and when piling supers up in the honey-house, one or several sheets of newspaper should be used between supers, to catch any possible drip and keep out dust and ants.

The shipping case adopted as the standard by the Colorado State Beekeepers' Association is the double-tier case with glass front, holding twenty-four sections, 4¼ x 1¼ x 1½ inches each. Use slim cement coated flat-head nails one inch long for nailing cases, put the best-looking side of grooved front strips to the outside, and select the best and smoothest finished boards for covers. If bottoms or cover boards should project, they must be planed off. This is necessary for proper loading. A sheet of plain paper goes into the bottom of the case, forming a tray; on top of this belongs a sheet of corrugated cardboard, corrugations up. On top of the lower tier of sections goes another paper tray and cardboard. Generally a sheet of corrugated cardboard is also furnished to lay on the top tier of sections. If this is not the case, and plain paper is used, it must not be permitted to stick out of the case.

The mark of the grade of honey must be put into both handholes of each case, as follows:

Fancy white must be marked XX in handholes.

Number one must be marked X in handholes.

Choice must be marked in handholes.

Number two must be marked II in handholes.

Sections must be well scraped. This means that all propolis (bee-glue) and beeswax must be removed from the edges and outside of all sections of honey. Some use a short and very sharp butcher-knife with broken point; others prefer a smaller knife with a square edge, kept square by the frequent use of a file. Sections that are badly mildewed must be put into the cull honey.

The cleaning and grading of honey must be done in a well-lighted place, but not in the direct rays of the sunlight. A well-ventilated and screened room with one or several large north windows is the ideal. No grading should be done by artificial light, because neither artificial light nor strong sunlight will enable a person to grade comb honey properly, owing to its transparency. A large bench or table is needed to give plenty of room for the work and the placing of shipping cases to pack the various grades in. Except for the fancy white it is necessary to have several cases for each grade on the bench so that honey of the same shade and finish will be cased together. Even in the No. 2 grade the packing of various shades of color in one case is bad work.

To avoid errors in casing, each grade should always have the same space on the bench, and cases should be marked with grade before covers are nailed on.

If possible one person only, with a good eye for color, should be entrusted with the work of grading the crop. The other work may be done by any number of persons. This plan secures uniformity of grading, and places the responsibility for this most important work on one person. The grader should be provided with a copy of the grading rules and

specimen sections, two or three of each grade, the poorest that are to go into each grade, have these specimens properly marked, and kept before the grader at all times, with instructions not to put any thing into a grade poorer than the specimens; and if in doubt about a section, to put it into the next lower grade.

A sensitive spring scales, with large dial, plainly indicating $\frac{1}{2}$ ounces, is needed for weighing doubtful sections. A scales especially adapted for the work can be bought for \$1.50. After using the scales for a short time most graders will find that but a small part of the crop needs to be weighed, as they soon get very efficient in judging weights.

The front sections of honey in a case must be alike in color and finish, and a true representation of the contents.

COMB HONEY NOT PERMITTED IN SHIPPING GRADES.

Honey packed in second-hand cases.

Honey in badly stained sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honeydew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the required weight.

Such honey may be sold around home or rendered.

Don't put off. Case comb honey as soon as taken from the hives, and market while weather is warm. The early market is usually the best.

Don't haul without springs, and don't allow cases to get soiled or dusty.

Don't ship comb honey in less than car lots unless packed in carrier crates holding 8 cases each, with straw in bottom.

Don't ship by express, except very short distances. Freight is cheaper and just as safe.

Notice.—As practically all beekeepers are now using separators between each row of sections, no provisions are made in the grading rules for half and non-separated honey.

TO EXTRACTED-HONEY PRODUCERS.—Do not get honey contaminated by excessive use of smoke.

Be sure honey is thoroughly ripened and well strained before putting into cans.

Put sixty pounds net in each five-gallon can.

Adopt the plan of marketing each extracting with a different number or letter, as there is usually a variation of color and flavor in the different extractings. If a good-sized sample is kept of each lot with the mark and number of cans in lot on it, it is easy to satisfy an intending purchaser as to quality and color.

Cases should be nailed with 7-penny cement-coated box nails; and for long-distance local shipment the ends should be strapped with band iron or wire.

The grading of any article, honey not excluded, is a simple matter if the person doing the grading will follow the golden rule and put himself in the place of the buyer.

We note that the foregoing rules differ from former ones in the following particulars: They now provide for a "fancy white." The old rules did not go further than No. 1 white. They also provide for another grade—namely, "choice," as an intermediate grading between 1 and 2. Grading "fancy white" and "No. 1" provides for combs being attached to all four sides of the section. This is a most excellent requirement, and will do much to avert trouble between the producer and the buyer. No comb should be considered fancy or No. 1 unless it is attached to all four sides. And, again, we notice that the new rules as well as the old ones place a limit as to weight. The old rules provided for the limit on the case itself. The new rules provide a limit on the individual sections themselves. A little consideration will show that this is a decided improvement. In the first

place, a limit on the sections practically throws out all unseparated or half-separated honey. It renders it absolutely necessary, in order to get a grading of fancy and No. 1 and choice, that all supers on the hives be separated. Any producer who will attempt to go along the old lines in the production of honey without separators or half separators will find his product barred by the Colorado rules as now revised. The individual limit set on the sections as to weight will shut him out, because he can not afford to put into his cases a 15, 16, or 17 ounce section and get a credit of only $13\frac{1}{2}$ ounces. The underweight sections—those under $13\frac{1}{2}$ ounces—will not be accepted at all. Under the old grading rules a ten-ounce section and a fifteen-ounce section could both go into the same case, providing the whole case of 24 sections weighed not less than 22 lbs. net. Clearly the unseparated man is out-classed and ruled out. No more will the "average" be accepted. Hereafter every section in the case must come up to a certain limit; and not only that, combs must not project beyond the wood. They may weigh more than $13\frac{1}{2}$ ounces, but must not weigh less.

Another very important suggestion is that for scraping the sections. It should have been incorporated in the rules, for it is very important. It would raise the standard of the goods put on the market and shut out the slovenly beekeeper who will not take the pains to put his goods up in proper shape.

We are not sure but Eastern beekeepers, with some slight modifications, perhaps, could adopt these rules to advantage. In our judgment it would be an excellent idea for a committee of representative beekeepers and a committee of representative buyers to meet in Chicago and agree on some uniform system of grading. Both committees should be made up of Eastern and Western men as well as representatives from the South. It will be impossible for the producers to adopt a set of rules unless the large buyers are willing to accept them. There should be friendly co-operation, to the end that there may be a uniformity of product and a clear understanding of what is meant by a "fancy," a No. 1, a "choice," and a No. 2. This will avoid a great deal of misunderstanding, lawsuits, and put the business of comb-honey production on a safe and sane basis. GLEANINGS will be glad to co-operate with any intelligent movement toward bringing about a uniform system of grading; and we suggest that the Colorado rules be used as a basis.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

JUNE 14, instead of supers being now filled, no supers are on, and bees are not getting their daily bread.

QUEEN CULTURE is the poetry of bee culture; and he who is not a queen-rearer has not yet enjoyed the beauties of beekeeping. *Deutsche Bzcht.* [Very true.—Ed.]

NOSEMA APIS has not been taken very seriously on this side the water, although it has in Germany; and now comes a report of investigations by Dr. Graham-Smith, G. W. Bullamore, and others, that points strongly to nosema as the cause of the Isle-of-Wight disease.

DR. G. F. WHITE has finally cornered the culprit that causes European foul brood, and christened him *Bacillus pluton*. We now know that our old acquaintance, *Bacillus alvei*, is innocent of causing any bee disease, that *Bacillus larvae* is responsible for American foul brood, and I suppose Dr. White is hot foot after the fellow that gets up pickled brood. [See editorial comment on his bulletin last issue, page 360.—Ed.]

WALTER S. POWDER, you seem to think Texas beekeepers will not ship bulk comb honey out of the State. I wonder, now, if you should advertise for a carload how long you would have to wait for it, and after you got it I wonder how much of it you could sell. A grand success in Texas may not succeed everywhere. [As a matter of fact, Texas bulk honey does not come up to the North. Northern consumers would not buy it, for the simple reason that they are not "educated" to it. If we can imagine that 50 or 75 per cent of the Texas population were to move up into New York, it is very probable that there would be a carload, or several of them, of Texas bulk honey shipped into York State.—Ed.]

FRANK-KLEIST colored the thorax of some 80 bees. He found them scattered all over the apiary, only a few remaining at their own home. More than that, a neighbor found two of the marked bees making themselves at home in his apiary an eighth of a mile distant.—*Leipzig. Bztg.*, 66. One may be easily deceived into thinking that an Italian queen is impurely mated because dark bees are found in the hive. Look on the combs for the downy little fellows that have just hatched. If they're all right the older ones don't count. [We have known that the bees of neighboring colonies will intermingle to some extent. Where young bees by mistake

get into the wrong hive they are accepted without any hesitation; and it may be that old bees would be received in like manner. It is because of this intermingling that we have always advised treating the colonies neighboring to as well as the one affected with foul brood. Years ago, when we had disease in one of our yards, we would be pretty certain that the two or three colonies facing in the same direction, and right near the affected ones, would show up the disease sooner or later, simply because the bees of the diseased hive would carry the infection into the hives near by.—Ed.]

"ALIUŠ" quotes the "renowned American Root" as recommending zinc vessels for honey, and is severe upon such teaching. The first honey he ever extracted he allowed to stand over night in a zinc (galvanized iron) extractor, in a damp kitchen, and next day the surface of the honey for an inch in depth was thin, black as ink, and tasted abominably. Three-fourths of it had to be thrown away.—*Ill. Monatsb.*, 68, [We do not know where Alius got the impression that we recommend zinc or galvanized iron unqualifiedly for the storage of honey. We do know this: that galvanized iron is used very extensively by the California beekeepers in their mammoth storage tanks, which are large enough to hold from ten to twenty tons of honey. In these large tanks the exposure of the zinc to the honey is relatively small. We use galvanized iron and tin in our honey-extractors because it is not supposed that the honey is to be kept stored in such machines. The honey-gate should be left wide open always, so that the honey can run into some other container. We admit that, if an inch or so of honey were left standing in the bottom of a galvanized-iron extracting can for a considerable length of time, the honey might absorb enough of the zinc so it could be tasted. Whether it would be poisonous or not we have our doubts. If "Alius" will point out the place, either in GLEANINGS or in the A B C and X Y Z of Bee Culture, where we distinctly recommend galvanized iron for making up honey-storage tanks we shall be glad to have him do so. The fact is, our literature is supposed to show what is being used for the storage of honey with perfect safety. Some of our foreign readers, probably from their inability to understand properly our language, appear to misread and therefore misquote.—Ed.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

That cover picture of the June 1st issue reminds me that, for some reason, raspberries here in Ontario do not yield honey to the same extent as reported in northern Michigan. While the raspberry is a good honey plant, yet it does not last very long; and as soon as clover comes into bloom the bees prefer the latter. By the way, I was talking to a friend a few weeks ago who formerly kept bees in northern Michigan, and in his opinion much of the "raspberry" honey of that section comes from milkweed and white clover. This claim is given without any comment on my part, as I know nothing personally about the matter. [The milkweed honey has quite a different flavor from the raspberry, as does also the white clover.—Ed.]

* * *

The editorial, page 327, June 1, regarding five-banded bees, is quite in order—not that I would pick out the advertisers of these bees for special criticism, but, rather, that we should insist on more careful advertising without the exaggeration so common to many who make claims for their goods in the press of the country. About the worst sinners in this respect are some of the advertisers in the poultry journals, and sometimes these same advertisers do not confine their efforts to poultry journals, but branch out in the bee journals. A person who answers an advertisement with hard cash has a right to receive just what the advertisement leads him to believe he will receive. Any thing less than that is fraud; and the writer of the advertisement, if he willfully misrepresents his goods, is, in plain English, a *liar* as well as a fraud.

* * *

An unusual number of demonstrations have been carried on in different Ontario apiaries this spring, and in most cases they have been well attended whenever weather was favorable. During the last week in May I was at two of these meetings in Hastings Co., and both were well attended, even though rain poured steadily all the time on the last day. While we could not open hives, yet we used empty hives and appliances for object lessons, and worked inside a building. As there were 20 or more beginners present on such a bad day, we wondered how many would have been there if the day had been fine. There is a source of pleasure in talking to a large number of

enthusiastic beginners in a meeting of this kind, and almost unconsciously the demonstrator will try to give the very best that is in him, when an audience is so appreciative. While I have little time for work of this nature, I unhesitatingly plead guilty to having a liking for it aside from what little pecuniary recompense there is in the job. I well remember how I used to like to find out things about beekeeping (the desire is still present) and now it is always a source of pleasure to meet some youngster who is enthusiastic about bees, and any help that I can give him is always given with great pleasure.

* * *

Last year at this time (June 12) the weather was hot and the ground dry and hard. This year we had cool weather all through May with the exception of two hot days (23d and 24th), and June up to date has been much the same, with the exception of last week, when no rain has fallen. The season is very late, as only a few clover heads are showing; and any flow, if we should have one, can not possibly be on before June 25, at the earliest. Clover is good wherever there is any; basswood is showing lots of buds, and there will be more than the usual acreage of buckwheat in many sections where the wet weather prevented seeding with other grain. This will not be in evidence in our locality so much, as most of our land is tile-drained, and the wet weather did not hamper the farmers so much. However, we look for quite an acreage of buckwheat on account of many farmers sowing their summer fallows with this plant in an effort to kill many of the weeds which seem to be on the increase of late years. At the east yard, the blueweed is in evidence as usual, and the prospects are good for basswood, of which there is an abundance in that section. Up north 100 miles, where I have one apiary, the prospects are good for all the usual sources of nectar—especially so for alsike and white clover.

While we have mentioned more than once that the prospects are poor at the home yards here in York Co., with good strong colonies we may perhaps get some surplus after all. At any rate, before the next batch of copy comes for GLEANINGS the question will have been decided one way or the other.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

The beemen of Fremont County have an energetic inspector in Mr. Flo. Brainard. Mr. Brainard inspected over 100 apiaries in 1911, containing about 1000 colonies. The foul-brood situation looks much better than last year, and within a short time it is probable that the loss will be reduced to the minimum. Mr. Brainard operates about 200 colonies of bees, and has a 7½-acre fruit place. He sells the most of his honey and fruit in the Cripple Creek mining country, and gets a better price than most Colorado beemen.

* * *

A good many bees have been killed by the fruitmen in the Canon City fruit districts by spraying with arsenate of lead for the leaf-roller. Probably some colonies will be depleted in strength, but few killed completely. The leaf-roller is a very serious pest, and the fruitmen feel that spraying is the only way to save their orchards from total destruction. They admit, however, that the spray is killing only a few of the rollers, but as long as they kill a few, some will continue to spray. Not all spray when the trees reach full bloom, although I saw two orchards in bloom being sprayed. Very few fruitmen now spray for codling moth at a time when the bees can be injured.

* * *

May 10 sweet clover was up one foot at Canon City, and colonies averaged four to six frames of brood. Freezing weather had hardly passed either. Canon City is further along with the season than any other part of the State. It is the distributing point for spring weather in Colorado. And there is one thing I want to say about this Canon City district. It is the most highly developed rural section of the State—perfect roads, rural delivery, tidy, comfortable homes (the houses are not oversize, as is so common in many rural communities), rural phones, small fruit-farms that are not a burden in caring for them. The climate is Californian with the rainy season left out. Canon City is a rural town; the town folks are the same as the country folks, and I'll dare any one to tell where the city limits of Canon City are. The town and country are one, and blend into each other imperceptibly. The town folks have the country spirit, and the country folks have the city advantages. I am often told that Boulder is the prettiest town in Colorado. If Boulder had the fruit district of Canon City surrounding it, my home town would be the best place on earth.

WINTER LOSSES AND HONEY PROSPECTS.

Bees have not wintered very satisfactorily, and in a number of places spring dwindling is depleting the colonies. The losses amount to about 25 per cent in the Platte Valley from Denver to Sterling. Some reports give a loss of 50 per cent near Sterling. While I have no report on the percentage of loss in the Arkansas Valley, word has come to me that bees did not winter well in that section. Several Wyoming beemen have written to me wanting to buy bees, and one gentleman said his losses had been heavy. From the low temperature recorded last winter in Wyoming, and the fact that most of the bees are kept in single-walled hives, heavy losses would naturally be expected. Some Idaho beemen are after more bees, partly due to loss of colonies and partly to a desire on the part of some to expand their operations. Idaho suffers as does Colorado, and doubtless other States, from overstocking in one locality and a lack of colonies in another. I can not say whether Utah beemen have suffered any losses or not, as I have no reports; but parts of the western slope of Colorado have had heavy losses, the largest loss being Montrose, where the mortality in a few apiaries was 50 per cent with many weak colonies trying hard to survive during the month of May.

I am writing this May 12, and the Montrose men say that two or three frames of brood are about as much as can be found at this time. Some hives have more and some less. It should be said here that the season is at least three weeks late, and there is still hope; but the backward season is playing "hob" with the weak "uns."

Now, in my judgment the prospects are good, there is an abundance of water for irrigation, and sweet clover is coming up as well as if not better than usual. This does not seem to be the case near Denver, but is true everywhere else that I have observed. The price of hay (alfalfa) is now \$18.00 to \$20.00, and at such a price the farmers will not leave the first cutting till it can bloom.

The fruit bloom is coming out in a gratifying manner, and a great fruit yield is expected if no freezing occurs. The fruit bloom is of considerable importance to the bee interests where it abounds, and stimulation to breeding and early swarming is the result. It seems here in the West that the swarming problem is a *problem* only in the regions of fruit bloom.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

In seven days after the sage weevil got fairly started, the sage was out of commission, with thousands upon thousands of buds destroyed that never matured.

* * *

GIVE PROF. COOK TIME TO MAKE GOOD.

From items that have appeared in various California publications it seems that State Horticultural Commissioner Cook, whom we know familiarly as Prof. Cook, has caused a storm of protest, some of which might be termed almost mild abuse, by summarily removing Chief Deputy Quarantine Officer E. O. Brenner. Mr. Brenner apparently had the confidence of fruit men over the entire State, and there seems to be no question about his successor, as shown by the following quotation from the *California Fruit Grower*: "Commissioner Cook has appointed, to succeed Mr. Brenner, the latter's deputy, Frederick Maskew." Also from the same column I read further on, "The criticism in this matter does not reflect in any way upon Mr. Maskew, however." From the above it seems that, while no one questions the ability of Mr. Brenner's successor, all are flaying Dr. Cook for Mr. Brenner's removal. Owing to the long service of Prof. Cook, and our knowledge of his ability as well as integrity, beekeepers will be slow to condemn until he has had time to get his forces in working order and prove his actions. Surely we are not ready to admit that Mr. Brenner is the only capable man California has for this position. Dr. Cook was not appointed for political reasons, but for his unquestionable ability, and he was appointed by Gov. Johnson, in whom the great majority of California people have unbounded confidence. It is true that some of his appointees have not been satisfactory to all, yet they seem to "make good" in the end; so let us reserve our judgment until Dr. Cook has had sufficient time to "make good."

* * *

CARLOAD SHIPMENTS OF BEES FROM UTAH TO THE ORANGE GROVES OF CALIFORNIA.

Serious objection to the shipment of bees from Utah and Nevada to our orange groves, for early spring breeding, has developed. A part of this is based on the fear that disease may be brought in, and the rest because of the danger of overstocking our ranges. The former is an objection worthy of serious consideration; but this could be easily overcome with prompt inspection by a competent inspec-

tor who could destroy all diseased bees and honey. Now note, I said, "*bees and honey*," not hives and wax. A short time ago I read of an injunction that had been served on an inspector at Lindsay, Cal., to prevent the burning of 300 colonies of bees. It makes my blood boil when I hear of an inspector burning up bees, hives, and all. The hives are worth at least \$1.50 each, or a total of \$450. Eighteen combs per extracting colony will produce 5 lbs. of wax worth 25 cts. per lb., or \$1.25 per colony, \$375, or a total loss to owner \$825. This is not only an economic waste, but useless destruction—absolutely useless—and practiced simply to get rid of the disease the quickest and easiest way possible, regardless of the loss to the owner. Why can not common horse sense be used in these matters? People do not burn a house because it has been infected with disease. Why not? Because it can be disinfected and made habitable again. So can a hive.

As to overstocking, it might be well for some of our local men to observe what used to be considered a beekeeper's moral right to a territory within reasonable range of his location, but which at this time is totally disregarded, there being at this time hundreds of colonies moved into the orange from the sage-fields that will probably be left on my range the entire season, owing to the failure of the sage. The Redlands orange district will support 40,000 colonies, if properly distributed, during the orange flow. But the range I am on is only sufficient for my bees to get a good living after the orange is over, and I must suffer more from this overstocking of my range this summer than thousands of colonies from Utah and Nevada would cause during the orange flow.

No man should expect his rights to be considered who does not consider the rights of others. But when tons of orange honey is going to waste daily we can supply many thousands of colonies better than we can a few hundred extra on our ranges during the summer months. Mr. M. A. Gill, of comb-honey fame, said at the banquet-table during the California State convention, "Boys, come on to Utah if you wish; we can take care of part of you but not all." Let us be as liberal, and say, in return, "Boys of Utah and Nevada, come over to the orange groves if you like, and build up your bees; we can take care of most of you, and we may want to take our bees and go home with you to share your benefits."

Conversations with Doolittle

At Borodino, New York.

WHAT ARE SUPERS AND UPPER STORIES?

"What is meant by supers?"

"In the Standard Dictionary I find that a super is, 1, Above in position; 2, Above in degree or amount."

"Then when the term as applied to bees it would mean the putting of an extra hive of combs above the hive the bees were already at work in, would it not?"

"Yes, if no specifications were made. But that would generally be called 'putting on an extra story;' or making a single hive into a two-story one. If another hive were put on, it would be called a three-story hive.

"Some beekeepers call what you term a two-story hive a hive with a super on; others talk about supers for extracted honey, and still others about supers of sections, either empty or with baits. Will you please explain this matter so we beginners can understand what you veterans are talking about?"

"A two-story hive could very properly be called a hive having a super on it for extracted honey. But a super for extracted honey is not always the same depth as the hive proper, for very many of our best apiarists use a much shallower box, although of the same dimensions otherwise, than the hive below. Hence the term 'extracting super' generally means any receptacle holding combs, and it may be from one-half to two-thirds of the depth of the hive below. If this 'super' is not filled with combs already drawn out it would probably be called an empty super, from which the veterans would expect that the frames used in it would either have starters in them or else be filled with comb foundation. However, in this case it would be better to say that a super with frames having starters in them, or a super with frames of foundation, was put on top of the brood-chamber.

"A super of sections is a box, generally of the same dimensions as the hive, except as to depth, filled with sections to hold the comb honey. This super is made a *beeway* deeper than the sections are tall, and in this way one, two, three, or more supers of sections can be piled up above the hive or brood-chamber. A super of empty sections would be understood to mean that the sections had only starters in them. The veteran might also understand that each section was filled with very thin comb foundation; but where this is the case, the expression 'filled with foundation' is generally used. 'Bait sections' are sections in which the bees

have worked the season previous, drawing out the foundation or building comb therein, yet not finishing their work to an extent sufficient to make the honey in the section marketable. The honey is removed from these unfinished sections generally, by having them cleaned out by the bees in the fall. Then one section, filled with this now empty comb, is put in the center of each section super put on at the beginning of the season. This empty comb has a drawing tendency, and the bees begin work in the sections much sooner than if only starters or full sheets of foundation were used.

"When I began keeping bees, forty-three years ago, comb foundation was unknown. Then comb of the worker size of cells was cut into strips about one inch thick, and by means of melted wax was attached to the under side of the top-bars of the frames. These were frames having starters in. For starters for comb honey, only *white* comb was used, no matter as to the size of the cells; and this was, with melted wax, attached to the under side of the tops of the sections. These white combs were cut into triangular pieces, the size of each being in proportion to the amount of white comb on hand. With the advent of comb foundation this was used instead of these starters, a strip of about an inch in width being considered the best for frames, and a triangle of about $1\frac{1}{2}$ inches on each side as being right for the sections. However, of late years there are few beekeepers who do not fill the sections nearly full of foundation."

"You said one section should be used as a bait. What about the expression 'supers with baits,' as it is often used?"

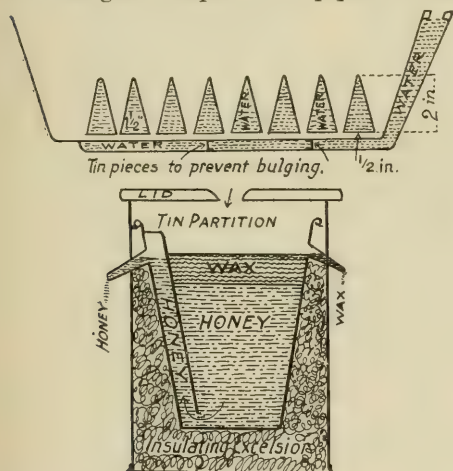
"It may mean forty supers of sections, each super having one section of drawn comb in it. But it would be more apt to mean that each super had more than one bait section in it. If one bait section has a drawing tendency for the bees, more of them will draw harder. The tendency is to draw the bees from the brood-chamber at the beginning of the honey-flow, so that work will not only be begun in the sections sooner, but that the swarming fever need not be contracted, as it almost always is by the massing of the bees in the brood-chamber at this time in the season. For this purpose four baits are much better than one, and four times four very much better yet. If the entire super can have all the sections full of clean, nicely built combs from the year before, the swarming tendency would be very largely overcome."

General Correspondence

THE ADVANTAGE OF TRIANGULAR TUBES IN A CAPPING-MELTER

BY F. A. POWERS

Mr. F. J. Severin's capping-melter, described Dec. 1, p. 722, is in the main modeled after one that I made. He has made an improvement in placing the gasoline-tank off the stove outside the building; also in using a wooden block in the top of the hole where the knives are heated. But in some important points the Severin machine is faulty. The space between the tubes should be $\frac{1}{8}$ inch instead of $\frac{1}{4}$. If the spaces are larger than $\frac{1}{8}$ inch, bits of cappings will pass through and slide out at the spout without being melted. Then the spout should be the full width of the machine, just a continuation of the bottom that the honey and wax fall on after passing through between the pipes. This makes it easy to clean out the space under the pipes. The triangular shape for the pipes is better



than the square, for the reason that the cappings that pass between the pipes are melted by the heat from the flat under surface of the pipes as the cappings slide along under them.

The place where the knives are heated should be larger, or extend clear across the machine, so that the evaporation will not lower the water so fast. The picture on page 724, Dec. 1, is a pretty fair representation of my own machine except for the changes I have mentioned. It is rather larger than is necessary, as eight pipes 18 $\frac{1}{4}$ inches long are all that two gasoline-burners will heat, and it will take two good uncappers to keep the water from boiling,

even with the burner going full blast. The water should never boil.

AN UNCAPPING KNIFE THAT HOLDS THE HEAT

To make an uncapping knife to use with this machine I solder a good thick sheet of copper to the flat side of a Bingham knife, letting it extend to within 1-16 inch of the edge, and bevel it off. The knife will then hold heat long enough to uncap both sides of a comb, and the copper will convey it to the edge, where it is wanted.

AN INSULATED SEPARATOR.

The lower drawing represents a wax-separator to use in connection with this melter. It is a 10-lb. lard-can with a piece of tin soldered on the inside to divide it in two parts, the tin extending to within $\frac{3}{4}$ inch of the bottom. The can is inclosed in a box with insulating between the box and the can. This arrangement does not injure the honey if kept going pretty lively; but otherwise the honey and wax remain in the separator so long that the honey is slightly injured.

Parma, Idaho.

A CAPPING-MELTER DESIGNED TO AFFORD A QUICK EXIT FOR THE HONEY AND WAX

Description of Comb and Capping-melter

BY H. BARTLETT-MILLER.

Having been blessed one season with a large harvest from about a hundred colonies, only to discover that the honey was non-extractable, and having had to leave during last year all my clover honey on the hives till winter, when it became as solid as a board, I determined to invent an improvement upon all the comb or capping melters of which I had read.

I had seen home-made melters—big, ponderous, and awkward. Truly they were "fearfully and wonderfully made," and worked—*sometimes*. Heat, radiated from a melter, I considered intolerable to the operator, besides being a source of waste. Therefore as a water-jacketed wall was meant to radiate heat inward in order to melt honey, it must also radiate exactly as much outward, resulting in unbearably stuffy honey-houses. So I eliminated the water-jacketed wall. There remained only the bottom, which, perforce, must be made larger to offset the lost heating surface of the walls. But a bottom too large meant hot honey blocked from the exit till it be-

came more or less deteriorated. Then, too, a large exit had to be provided for the pollen and slumgum. My final plan was to increase the bottom surface by ridging it and putting a piece of angle iron loose in each gutter made by the ridges to carry away all melted honey as soon as it could run.

Previous experience had taught me that the outside, or what I term the "receiving gutter," must be water-jacketed. The experience was not my own, however, but that of a friend whom I found down on the floor of his honey-room muttering language "not loud but deep" while he shoveled up about 50 lbs. of cold wax and honey which had overrun through the wax, chilling and stopping the gutter.

This melter of mine radiates no noticeable heat, as the sides containing water are nowhere higher than about three inches; and the necessity for inclosing it in any

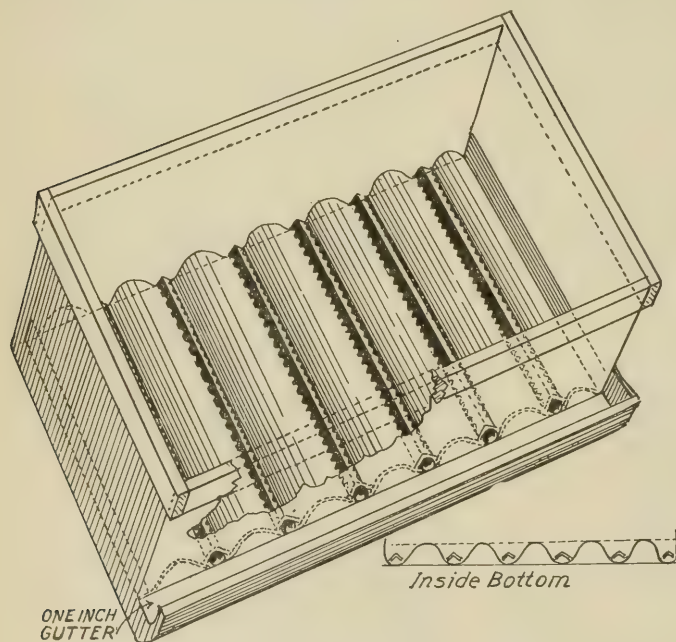
and down the ridges and gutters being thus rounded, as it is not important to hammer each bend to an acute angle. I thus obtained considerably more heating surface than the bare length of the bottom. As soon as the honey and wax melt they run down the slope of the gutter, and are received beneath the angle iron or bridge piece, made by bending at right angles pieces of iron about $1\frac{1}{2}$ or 2 inches wide, and as long as each gutter, and notching the edges deep enough to allow a full cell of pollen to get through. The flow of the honey carries along all the slumgum to the exit into the receiving trough through the holes in the side of the melter at the end of each gutter. After the bottom is soldered in, cut or drill for each channel iron a $\frac{3}{4}$ -inch hole in the wall of the melter on the receiving-trough side, and file the bottom of this hole to the shape of the bottom of each gutter so that

no projection may prevent any solid matter floating into the receiving trough.

I made my melter wide enough from front to back (the receiving-trough side being front), so that an L. frame would rest inside the melter, and deep enough to clear the bottom by three inches, so as to hold frames while a good layer of honey was melting. My melter has nine gutters; but it could be made any length if not too cumbersome.

Besides the holes for exit from the channel iron to the receiving trough, one should be punched at one end into the water compartment and a small funnel piece soldered on for a filler.

The bottoms of the gutters need not be more than one inch above the true bottom. This will bring the ridges about three inches above the bottom; and with the large heating surface the thin layer of water heats quickly, so that, when in full swing, the ridges are nearly always full of live steam beneath, and all pollen and solid matter run outside without that damming back of melted honey, which is the one great drawback with many melters I have seen planned, unless they are too slow for practical purposes.



sort of box is entirely obviated. Any handy man can make his own. I made mine in a few hours. All the soldering to be done is around the inside, on the ridged bottom, the ends of the gutter, of which one, of course, and the corners of the container itself, is blocked up.

To bend the bottom I nailed a piece of stout timber on a bench so that a sheet of galvanized iron would go under; and, having marked crosslines the full width of the bottom, three inches apart and exactly parallel, I just bent the iron to the marks up

When old brood-combs are melted, the cocoons, after some four hours' work, stick to the bottoms of the notches on the sides of the channel irons, and it is wise at each midday stop to clean this out. It does not take more than five minutes. I use for this purpose a piece of wood cut to fit the gutters. I had, perhaps, an extra lot of this to contend with, because I always lift up the brood-chamber except one frame, to prevent swarming; and, of course, the pollen was simply filled over with honey. Yet I melted over 700 lbs. of honey from such combs in four hours, cutting the combs from wired frames, and leaving the wires in the frames. The melter often got ahead of me, running empty except for a little rubbish. If I ever make another it will have twelve gutters so I can fill it up and leave it for half an hour. This one of nine gutters is such a glutton that it needs constant feeding.

It is well, when the soldering is finished, to make a frame of $2 \times \frac{7}{8}$ stuff, and run a sawkerf all around the middle of one edge to fit the top edge of the melter. Then drive a few fine nails through both wood and iron. The top is thus nicely stiffened, and a handle made for carrying.

I have not mentioned the honey and wax separating vessel, as all practical men know how to manage that part of the business. For a shelf or support to work on I cut a piece of $\frac{7}{8}$ stuff to fit over the top frame with a notch at each end, so I can slide it from end to end. I bore a hole about six inches from one end to push the end of the frame in, and cut out the combs. I have not tried cappings, but I know the melter would simply romp away with them. For heating I use a blow-torch. It is noisy, but it makes the honey run, and there is no discoloration. The honey really does not have time to get discolored. I have yet to find any bad effect from the zinc in the galvanized iron. As a student of chemistry I know zinc is harmless in this case.

The angle irons must be soldered in pairs or more at one end by a narrow strip extending over a ridge or ridges, and attached to the top of the angle iron; otherwise, instead of straddling the gutters they would fall over, so that both notched edges would be lying on one slope. It is advisable to remove all slumgum at any long stoppage, because while it does not interfere with the flow of the melted honey, any great amount of it would stain any white honey going through it. All my clover honey was in comb built from starters in wired frames intended to be kept for extracting only, as mostly drone was built. It was produced above excluders; had a small amount of

pollen, and was absolutely as white when put up after the melting as if I had extracted it in the usual way. The non-extractable lot of last year's crop was slightly darkened after about six hours' run without cleaning; but it was dark before melting any way, as it was in old brood combs.

Kihikihi, N. Z.

[This melter is somewhat similar to the one described by J. W. George, p. 667, Nov. 1, 1909, except that the "gutters" are deeper and there is an exit at the end of each one. The plan described by Mr. Powers in the preceding article would probably be more efficient still.—Ed.]

HOW TO GET RID OF CAPPINGS

Some Experience with Draining-cans Made of Galvanized Wash-tubs; a Capping-press

BY MAJOR SHALLARD

The ordinary uncapping-box, like the McIntyre, with wire screen to drain out the honey, has never appeared to me to be a good utensil. It is too bulky; it is hard to get the cappings out of it; and when they are out, and it is not in use, it takes up a lot of room. If it is lined with tin, care must be taken that it does not rust. If one takes the cappings out with his hands it is a messy job; and if a spade is used, there is danger of injuring the fixings.

My first uncapping-can (in 1884) was like Dadant's. I did not like it. Any cappings that were left in it over night had to be taken out, because it would not do to put fresh cappings on top. It was hard to empty by hand; and, on account of its depth, a spade could not be used. Then when not in use it had to be kept inside, taking up valuable room. I discarded it and got ordinary galvanized wash-tubs. When these tubs are not in use they can be packed one in another, and left outside in all kinds of weather. They make a compact parcel to take to outyards, and afford an easy way to carry cappings home. I got the largest tub on the market and one of the second size, and punched the bottom of the larger one as full of holes as possible, with the tang of a file. I shall never forget the look of astonishment on the salesman's face when, after buying the tubs (I bought 18, as I was running 800 hives at the time), I punched several holes in the bottom of a large one. I put this large one into the smaller one, and it fit tight. The large tub is 28 inches across the top by 12 deep; the small one is 26 inches by the same depth. The large tub will hold all the cappings from 500 combs. I got two pieces of wood 32 inches long, $1\frac{1}{2}$ wide, and one inch

thick. I nailed these together 9 inches apart, and slipped the ends of one piece through the handles of the tub, thus holding it in position for uncapping. After the day's work is done this is taken off the top. The top tub is lifted, and the wood put between. In the morning the bottom tub is nearly full of honey. The top tub is lifted off and put into another small tub and left to drain. The tub with the honey in is lifted up to the extractor and poured through it into the tank. When another tub of cappings is ready it is placed on top of the first lot, and so on.

I used this method for some time, and then I got tired of having cappings around. The rats got at them; also the moths, and they were always an incentive to the bees to rob, and so I made a press. The box is of 1¼-inch stuff, halved at the corners, and nailed both ways. It is 17x12x17 inches each way. The sides are lined with slats running from top to bottom. Across the bottom three pieces of 3x1 hard wood are nailed, and across these more slats. This box stands on a 4x4 hard-wood frame. The two uprights that carry the crossarm at the top are mortised through this frame and fastened with wooden pins so that, when the pressure is applied (with a carpenter's iron bench-screw), it pulls this frame and the crossarm toward each other, and does not shove the slatted bottom off the box. The follower is a square box made of inch wood to fit the press, and is 11 inches deep. It has a piece of 3x2 hard wood let in under the lid, and another piece on the same side, inside the bottom, to take the strain. The 4x4 frame stands on legs, and there is a galvanized-iron tray (to catch the honey) which holds 60 lbs. After I got this press at work, instead of standing the tub or tubs of cappings away in the corner they were lifted over to the press and the cappings shoveled into half a chaff bag, and the honey pressed out. The shovel may be allowed to slide right along the bottom of these tubs, and it will not hurt them a bit.

The cakes of cappings come out as hard as a stone, 17x17x3 inches, as the press is strong enough to allow the most powerful man to screw it down as hard as he is able.

To give some idea of the strain, I might mention that we broke several crossbars, made of ironbark, 6x2½ inches. Since then I have made one 6x4 of the same wood, and no one is strong enough yet to break that. I got some boxes with lids to store the cakes in; but they were not satisfactory. The rats gnawed holes through them, and some hives were filled too full, and the lid would not shut, so I got a square iron tank. These are procurable all over Aus-

tralia. They are made of one-sixteenth black iron riveted together, and are 4x4x4 feet, and 3x3x3 feet, with a manhole in the top, and a close-fitting lid. The one I got had a crack in the corner where the iron had split when being folded; and when it got hot from the sun (it is kept in the open) more honey ran out of the cakes and out of this crack. When I found this I tipped the tank toward that corner, and now the bees do a regular business when there is no flow on. I know of no practical way of getting *all* the honey from the cappings. I have carried the tubs out, and have let the bees get at the bottoms after we had finished extracting, and they got the most of it; but I doubt if the game is worth the candle.

For many years I used solar extractors to get the wax from the cappings, until I found that a friend was getting more wax from much fewer bees by boiling the cappings in a bag, the same as depicted in the A B C and X Y Z of Bee Culture. I then tried treating the slumgum; but the result was not satisfactory. I got a block of dark-gray wax; and after treating this with acid I got three-fifths light and the rest rubbish. Then I tried treating the whole lot in the bags the same as my friend did; but I did not like that either. Then I tried tipping the whole lot into a copper and treating it with acid the same as mentioned in the A B C book; but in that description cakes were put in without refuse. I dipped off all I could, but found too much left behind to cool, mixed with refuse. I thought the honey had something to do with this result, so I soaked my cappings in bags in the creek for 48 hours, and the result was much better. Still, it was not satisfactory. Then I altered it. I dipped off what I could, and put the rest through the press; and, judging from appearance, there is but very little wax in the refuse. This is much the best method so far, but it is not satisfactory. It is too slow, and there is too much labor, so I have purchased a German wax-press, and I mean to see if that will help to expedite matters.

South Woodburn, N. S. W., April 16.

[From experiments that we made, it seemed to us that it is a pretty slow process to press the honey from the cappings. On this account we prefer the capping-melter; for, although certain kinds of honey are injured slightly, one can hardly tell the difference unless the honey has been allowed to stand a long time in the melter or in contact with the hot wax, and the results every other way are certainly much more satisfactory.—Ed.]

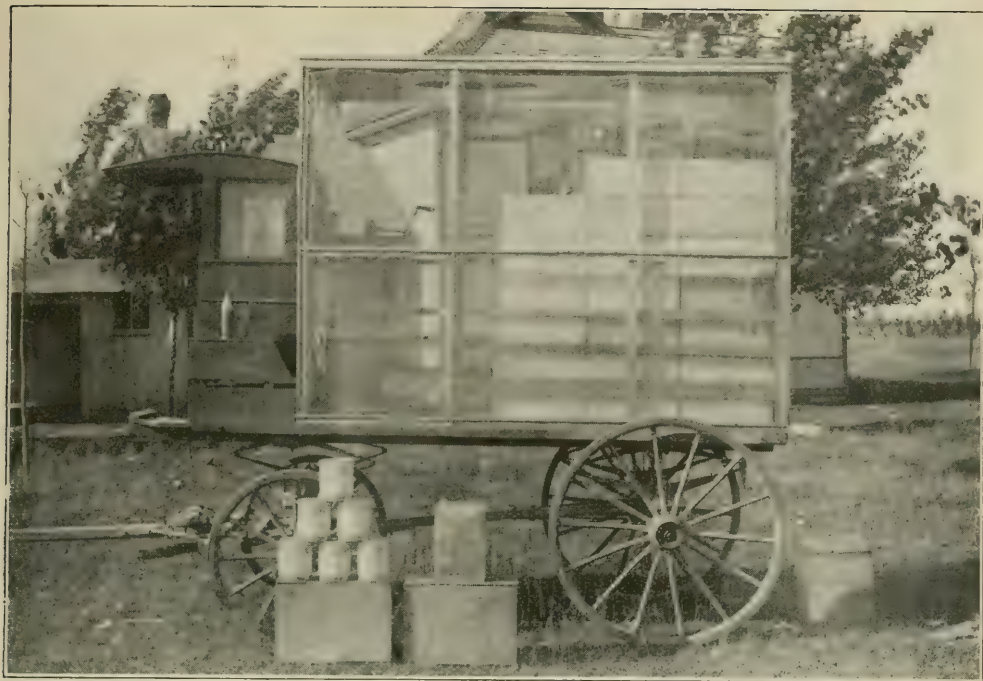


Fig. 1.—Portable extracting outfit of Geo. H. Kirkpatrick, Rapid City, Mich.

AN EXTRACTING-OUTFIT ON A LIGHT SPRING WAGON

BY GEO. H. KIRKPATRICK

When I first established a system of out-yards it was my practice to build honey-houses at each yard; but I have discontinued their use for various reasons. The lumbermen cut away the timber, then the raspberries follow; but these fail when the farmer clears the land and fits it for the plow, so that the beekeeper must move on to a new location. For three years, therefore, I have used the extracting-wagon as shown in Fig. 1. The framework for the top is the same length and breadth as the platform, and 6 feet 4 inches thick. The top is covered with canvas, and the sides and ends with wire screen, the door being in the back end.

Toward the front of the wagon is a tank which has a capacity of 700 lbs., on the top of which is an uncapping-can. The tank is fitted with a gravity strainer, and the honey is drawn from a gate under the wagon. With my two-frame automatic extractor I can, with the help of two boys, remove from the hives, extract, and put in cans, 2000 lbs. of honey per day.

When the honey in the upper super is nearly all capped we begin extracting. Thirty-four 60-lb. cans in the wheelbarrow

are placed in the wagon, the team hitched on, and the boys and I are off to an out-yard. When we arrive, a convenient place is chosen for the wagon. We find it is always best to locate it where the ground has a little slope, as it is easier for the team to move it when it is loaded. When the whole outfit is located, an adjustable post is placed under each of the four corners of the wagon to hold it steady. As the supers are carried in, they are placed on the right side of the wagon and transferred to the left side when emptied.

Fig. 2 shows eleven colonies at the close of an eleven-day flow from milkweed in July, 1911. These eleven colonies produced 1320 lbs. in this time.

MOVING TO FALL PASTURE

The harvest of raspberry and milkweed closes about the middle of July. We extract the honey and get it into the cans as quickly as possible, then prepare about half of the colonies at each apiary and move them to buckwheat or the willow-herb. A queen-excluder is placed over the brood-chamber, a super containing a full set of combs is put on, and a wire screen set on top. A wire screen for the entrance is also dropped before each colony. When the bees have stopped flying late in the evening, I take a hammer and smoker and a few crate staples, and soon have thirty colonies



Fig. 2.—Eleven colonies that produced 1320 pounds of milkweed honey in eleven days.

ready to load. I first close the entrance, then fasten the bottom of the super, and finally the screen, using the crate staples to do this. I load the bees in the evening and move them the following day.

Fig. 3 shows my wagon built especially for hauling bees. Not many beekeepers use spring wagons, but I use no other. The load shown in this illustration was drawn seven miles; and when I was within a few miles of my destination I was so unfortunate as to throw from the wagon eleven colonies. I am a lover of the camera, and carry one with me nearly every time, and I brought it into play at once, as shown in Fig. 4. This was in hard-timber stubble land where the red raspberry flourishes.

Fig. 5 shows a load of supers. A $\frac{3}{8}$ -inch rope is passed around the load a few times and made fast by tying the two ends together. The slack is then taken up by drawing the rope down at one point and upward at another, forming a zig-zag line which is held in place by nails driven above and below.

RADISH HONEY

Early in the season of 1911 I learned that an agent, sent out by a seed company, had contracted with the farmers in an adjoining township to grow radishes for seed, 300 acres being grown within an area of

nine square miles. Wishing to know whether the radish is a honey-plant I moved 32 colonies to this location. Owing to the early and late planting, the blossoming began in July and continued until frost. I made three visits to this apiary during the season, and each time found many bees working on the radish bloom. It is a good pollen-producer, but I fear it does not amount to much for honey. I extracted some honey and found it of good body and fair flavor, though a bit spicy, and the color was light cherry red.

Rapid City, Mich.

DRAINING OUT MOST OF THE HONEY BEFORE MELTING THE CAPPINGS

A Combined Uncapping-box and Capping-Melter

BY E. L. SECHRIST

Honey, in this locality, granulates so quickly that cappings become one solid mass in a very few days if allowed to stand and drain, so some kind of capping-melter seems necessary.

The two I have used this season were very satisfactory, both being of the same design, one 5 feet, the other 6 feet long. Seven or eight feet might be even better if there were space in the extracting-room for

it. They are easily made, and not expensive.

It is, in principle, a McIntyre uncapping box combined with a melter, the melter being confined to a space of two feet at one end of the box, under which is a water-tank to be heated by a one-burner oil-stove.

The box is 6 ft. long by 2 ft. wide, of $\frac{7}{8}$ inch boards, 12 inches wide, nailed to 2x4 legs 32 inches long. The bottom is a sheet of galvanized iron with edges turned up from 1 inch at the rear to 3 inches at the front, then turned outward 1 inch for railing to the bottom edge of the box. This gives a drop of 2 inches from the rear to the wax outlet. This pan is nailed to the bottom edge of the box, and another board is nailed to the legs below the iron, as shown, supporting the iron bottom. At the heater end there is a box enclosing the stove to prevent drafts and to confine the heat. A door admits of lighting the stove and of removing the oil-tank for filling.

One side of the water-tank projects beyond the box, forming a place for filling the tank in which knives may be heated.

A two-inch-high partition or honey-stop is soldered in V shape to the top of the galvanized iron pan, separating the draining space from the melter proper. At the inner point of the honey-stop is a hole

where the honey draining from the cappings runs down into a little half-round trough under the iron bottom, and thence into a bucket at the side of the box.

I use a $\frac{1}{4}$ -inch-mesh wire screen over the 4x2-foot draining surface; but a slatted train board may be used if desired.

When working, the cappings fall on any part of the draining surface; and as they drain they are shoved along toward the melter, finally being shoved off the draining-screen, which rests on the honey-stop, separating the draining surface from the melter, and dropping on the heated melter, where they gradually melt, and wax and honey run down the inclined surface into the wax-separator.

About three-fourths of the honey will drain from the cappings and run out of the side spout, never being heated at all. The remainder of the honey runs out with the melted wax, and is a shade darker and a bit off in flavor from being heated with the dark cappings. We kept this heated honey separate in extracting the lighter grades of honey; but with the darker grades we put it with that which came from the extractor and draining surface.

In uncapping 1500 lbs., about 10 to 15 gallons of honey will drain from the cappings before they reach the melter. If not



Fig. 3.—Kirkpatrick's wagon, built especially for moving bees.



Fig. 4.—Eleven colonies tipped off by accident.

more than 1800 or 2000 lbs. is extracted in one day, the cappings may drain over night and melting begin the next morning.

I like this melter, because while it serves, primarily, as an uncapping-box and drainer, getting out as much of the honey unheated as can drain out in the time allowed for draining, which depends on the length of the box and the rapidity of extracting, there is no extra apparatus required for

melting, and no handling of sticky, messy cappings from one box to another.

The cappings are entirely cleaned up in the one machine, and with proper wax-separators the cakes of wax may be removed as they cool. The warm honey goes into the strainer.

In this locality the nights are often so cool that extracting early in the morning is not practicable, as the honey will not go through the strainer. There are many days, also, that are so cool that honey can not be thrown out

clean from the combs with the hand extractor. The power extractor will throw out the thick honey, and I am planning to heat all my honey, next season, before it goes into the strainer. Our thick alfalfa honey, when cold, goes through the strainer slowly and clogs up the cloths very quickly, and the gravity strainer is not practical for our use. Has anybody used such a heater?

Locality is such a varying factor that



Fig. 5.—Load of supers secured with a rope.



One of E. L. Sechrist's apiaries, Clarksburg, Cal.

what is entirely practical in one place is useless in another. For instance, we could never think of producing bulk comb honey, as much of our honey granulates from two days to a week after being taken from the combs, and granulates in the combs in a month; so with bulk comb honey we should have a solid, unsalable mass.

Clarksburg, Yolo Co., Cal.

IS A HIGH PRICE FOR HONEY ALTOGETHER DESIRABLE?

BY E. W. PEIRCE

'Tis said, "When young folks talk to old folks they should know what they're about." If, therefore, in the course of this article I shall go counter to the tenets of my elders in the profession I beg that those seeming fallacies be charged to "youth" rather than to any desire to occupy an arbitrary position. A baker's dozen years of experience as a keeper of bees and producer of honey on a small scale, together with a number of years devoted to the buying and selling of honey may possibly entitle me to a corner in the councils of the wise.

In reading the compositions on the subject of selling honey appearing in the vari-

ous bee journals during the last few months I have been impressed with the dominance of one specific note—"How get higher prices?" So persistent has been the harping on this one string that I am venturing to voice my sentiments here, even at the risk of striking an unpopular chord.

Let me say at the outset that I have no desire to quarrel with any of my good friends the beekeepers (and thus jeopardize my daily bread). Our interests are mutual; and if anybody is in a position to rejoice with them in prosperity and mourn with them in adversity, surely it is I. Moreover, the threefold nature of my relation to the trade should enable me to view the subject from different angles and discuss it in an unbiased way.

Any legitimate effort, either of producer or dealer, to secure good prices is commendable. But is it not true that the advocates of higher prices too often in their pleadings totally ignore certain factors that must enter into the problem?

There is one law that never has been and never can be repealed—the law of supply and demand. Combination and manipulation may for a time suspend its operation, but there is a perpetual equilibrium in the sphere of economics that necessitates its reinforcement. Why are eggs quoted at twelve



Sechrist's combined uncapping-box and melter. Three-fourths of the honey drains off before the cappings reach the hot surface, so that only about one-fourth is heated.

cents a dozen in June and forty cents in January? Simply because in June the supply balances demand; whereas in January demand outweighs supply. "Cornering the market" may modify the price to a considerable extent, but there is a limit that can not be exceeded without curtailing the demand. Were the cold-storage men to advance eggs to two dollars a dozen, even assuming that they could control the entire supply, how many of us would eat custard pies?

Let us now apply the same reasoning to the honey situation, not losing sight of the fact, however, that eggs are a staple—a *quasi* necessity—whereas honey is admittedly a luxury. Even at the exorbitant price suggested, there would be an appreciable though almost infinitely diminished demand for eggs. In the case of honey, even a small fraction of this coefficient of expansion would be in effect prohibitive.

It is true that, in many cases, the individual beekeeper can develop in his immediate neighborhood a demand for his honey at any price within reason, and he is entitled to the highest figure he can command. But we are considering the market in its wider scope. I concede that, in the larger cities, there is quite a large fancy trade that will buy luxuries almost regardless of price. Yet this is a small proportion of the purchasing population of these centers, much less of the country at large.

The amount expended by any community for various commodities is determined chiefly by the wage-scale and the price-current, other conditions being normal. Obviously, necessities must come first; and the amount, if any, in excess of what is required for these must suffice for luxuries. At best the margin is small. Our city of thirty thousand is perhaps a typical one, most of the citizens being of the wage-earn-

ing class, and the consumption of honey here is probably about the average. My observation, covering a period of years, has been that, when comb honey retails at 20 cents or less per average section, there is a staple demand; but if the price be increased to 22 cents, there follows a shrinkage altogether out of proportion to the advance. In other words, 20 cents is the "dead line"—the limit that can not be exceeded if a healthy demand is to continue. I could wish that the standard price might be higher here and everywhere. Gladly would I see both producer and dealer secure the larger profit. But, to quote one of our former presidents, "It is a condition and not a theory that confronts us;" and any attempt on the part of either the National Association or any other organization or individual to "bull" the market, to the utter disregard of these considerations, must necessarily react by cutting down the demand for honey,

and thus frustrating at once its very purpose.

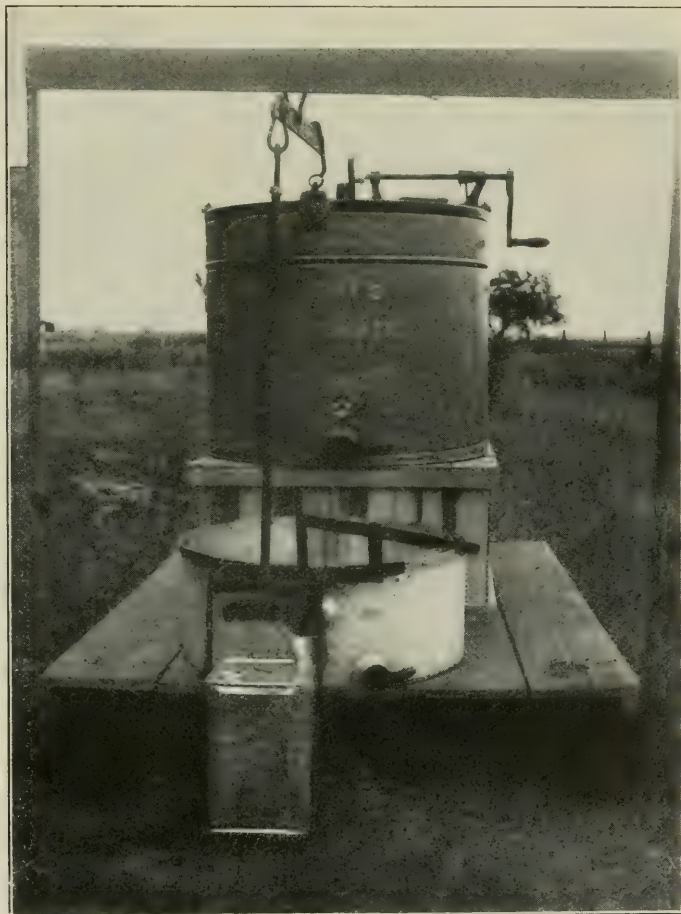
To make my position clear, allow me here to introduce the much "cussed" and discussed "Karo corn syrup." Why are such immense quantities of this syrup consumed? First, because of the able and persistent advertising of its merits; second, because, to the average taste, it is palatable; third, and chiefly, because it is cheap. It is not my purpose to advertise Karo, albeit we may as well admit that it is here to stay. Nothing is gained by shutting our eyes to the truth, nor will misrepresentation or detraction alter the facts. What is "corn syrup"? A variable mixture of glucose, or grape sugar, and other invert sugars, etc., manufactured from corn starch by the action of dilute acids. Karo and other cheap syrups consist essentially of corn syrup with a small percentage of cane-sugar syrup added to intensify the sweet. The only valid objection to pure glucose or any sugar of its class is its inferior sweetening power, it being only about half as sweet as sucrose or ordinary cane sugar. According to the best authorities it is not injurious to health; on the contrary, being (like honey) "inverted" — predigested, as it were — it is more readily assimilated than cane or beet sugar. It is the form in which sugar generally exists in fruits, etc., and the substance into which the starch of our food is converted by the digestive ferments before it can be utilized in the vital economy.

As to palatability, that is another question; and, as a Latin professor used to remark, "De gustibus non est disputandum," there is no disputing about tastes. I must confess that personally I am not averse to the use of the lighter-colored of these syrups as an occasional change from more pronounced sweets, though I freely grant that the best of them is a far call from

white-clover honey. But mix them—take half honey and half *white* Karo—and see what you get. "Lickin' good!" Try it for yourself.

Now, instead of running down these syrups and attempting to bull the honey market without regard to the ratio of demand to supply, would it not be wiser to publish broadcast such a recipe as the foregoing, if by so doing the demand for honey could be, as it undoubtedly would be, materially increased? If honey is ever to have its rightful place as a staple along with bread and butter and sugar and meat, it must be popularized. This can be accomplished only by systematic advertising of its virtues, and by its production on a scale that will allow delivery to the consumer at a reasonable price.

What is needed is not higher prices regardless of any and all other considerations. The situation demands, instead, *more*



B. B. Hogaboom's combined gravity strainer and automatic device for closing the gate when the can is full.

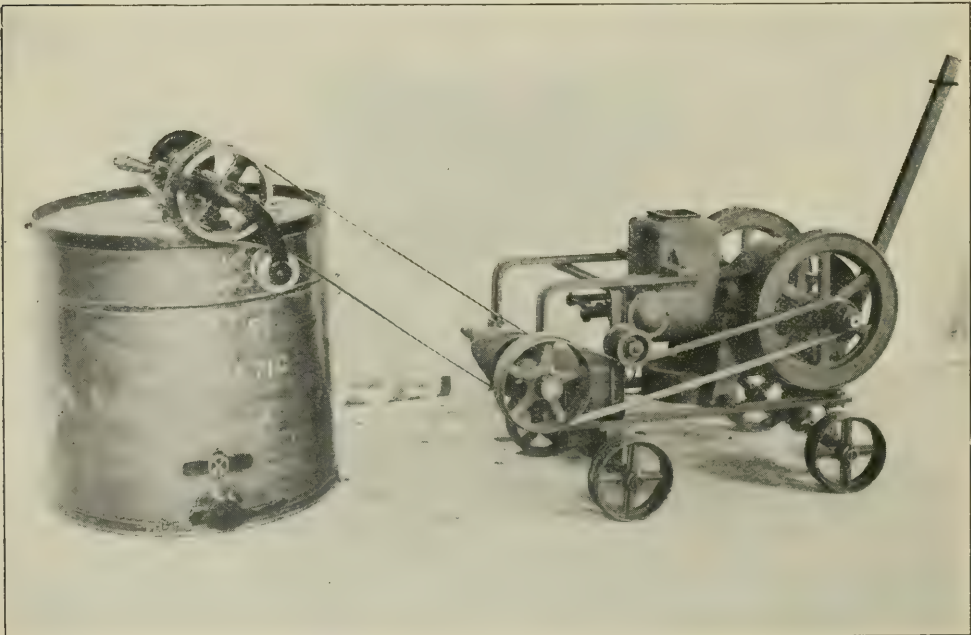


A large lot of bulk comb honey in Mason jars being heated by the sun to retard granulation.

beekeepers, better beekeepers; more bees, better bees; and, as a natural result of improved methods and intelligent management, *more honey and better honey,* so cheaply produced and so widely distributed

that not only will it be profitable alike to producer and dealer, but even the humble toiler can well afford to use it with his daily bread.

Zanesville, Ohio, April 11.



The New 60-speed engine made by the Gilson Manufacturing Co., Port Washington, Wisconsin. The particular feature of this engine is the jack-shaft and series of interchangeable pulleys by means of which 60 different driving speeds may be secured, so that the engine may be used to run any thing from a grindstone to an emery wheel without expensive pulleys, shafting, and belts. This should appeal to the beekeeper.

[We have no doubt that some of our subscribers will take issue with Mr. Peirce, especially as to his proposition relating to glucose or Karo. While we do not know the exact character of Karo, we do know that some authorities claim that glucose, because of the difficulty of eliminating all the acids used in its manufacture, is not altogether a wholesome food. We admit that some chemists claim that glucose, while having a very low sweetening power, is not unwholesome; but they evidently refer to an article that contains no residue of acid or neutralizing salt. A few years ago it was reported that John D. Rockefeller, reputed to be interested in the manufacture of glucose, would give one hundred thousand dollars to any one who would discover some process for eliminating absolutely the acid used in the making of it. We have never heard that the hundred thousand was taken. At all events, commercial glucose at least contains something that the makers would like to get rid of.]

We have never tasted glucose or glucose preparations without having a very unpleasant after-taste, best described by the term "brassy." Some years we partook of common commercial glucose quite freely—ate it three times a day, to see if we could acquire a taste for it. Our digestion was upset for two weeks; and to this day glucose, even a slight taste of it, brings back the feeling of nausea which we shall never forget.—ED.]

A COMBINED STRAINER AND AUTOMATIC CAN-FILLER

BY B. B. HOGABOOM

For two seasons I have used my patent strainer and automatic can-filler, as shown in the photograph, and I find that the outfit is perfection itself. The strainer can is 40 inches in diameter and 16 inches deep. The circular screen for straining is supported $1\frac{1}{4}$ inches from the outside and from the bottom of the can, while the honey remains within $3\frac{1}{2}$ inches from the top all the time as it runs from the bottom of the strainer through a tube up to the gate. A small pan (not shown in the photo) 12 inches in diameter, $\frac{1}{2}$ inch deep, is $\frac{1}{2}$ inch below the surface of the honey in the strainer can; and it stops all cappings of wax particles $\frac{1}{2}$ inch below the surface of the honey, and they at once start to rise from this level instead of going down and coming in contact with the screen, as they would do if no pan were used.

This strainer may be used day after day without becoming clogged unless the honey

is partly granulated. If it is granulated I have a sectional screen by the use of which the solid portions settle on the lower part, while the honey strains through the upper part of each section. The parts of this sectional screen are detachable, and may be cleaned very quickly. This is not necessary except in case of large quantities of granulation, which very seldom occurs.

The automatic filler is shown very plainly. The valve closes instantly when the desired weight is reached. This is automatic, and can not miss, as the valve is perfectly loose, with not one particle of friction until it reaches its seat, where it is firmly clasped with a spring. The rod reaching from the filler to the balance is in two sections, one going inside of the other, secured by set-screw so it can be hung at any height—preferably from $6\frac{1}{2}$ to 8 ft. from the floor, which is out of the way. This device is also detachable from the strainer, fitting any size of strainer can. I usually arrange this automatic filler with an electric bell which always announces to the operator that the can is filled. There is about $3\frac{1}{2}$ inches of space from the level of the honey in this can to the top while running. This extra space would hold about 10 gallons, which avoids all danger of overflowing while changing cans. By the use of this complete device there is not one moment lost during a day or week in extracting, except to remove the full can and replace the empty—no cleaning of strainer, and no overflowing of honey. The small gate at the bottom of the strainer-can is used only to draw the remaining honey after the yard has been extracted.

Elk Grove, California.

[As can be seen, this is really a gravity strainer, with a screen to strain out the larger bits of comb, etc. It would seem as though the can should be deeper, but if our correspondent finds that this depth renders the honey sufficiently clear, then a deeper can would be of no particular advantage.—ED.]

PACKING BULK COMB HONEY IN GLASS

Liquefying Candied Honey by the Sun's Rays
without Melting the Comb

BY J. J. WILDER

When I began the production of bulk comb honey in a wholesale way I used large-mouth cans and pails to pack it in; but I soon found that it was not best to pack it thus, especially for the local market. On account of the low freight rate, tin is all right for shipments over three or

four hundred miles; but for shorter distances the trade prefers it packed in glass, because it thus sells far better and for a better price, so long as the article is fancy. The local trade takes to this new way of packing the honey very well where the people are familiar with honey; but when it comes to building up a trade or demand, it is slow work. So, taking all things into consideration, we have found it better to pack all the light honey in glass and the off or dark grades in cans and pails.

After trying nearly every kind of glass packages that could be used for this purpose we have adopted the regular Mason fruit-jars—quart and pint size—and we have found more demand for the latter size. Of course the honey thus packed is neatly labeled with our name, address, and guarantee.

ADVANTAGE OF MASON JARS.

Aside from the demand, there are many other advantages in this package to the honey-producers. They can buy the jars at almost any grocery, and get them at a greatly reduced price at any wholesale grocery by taking a considerable quantity of them.

Then the jars come well packed in good corrugated paper cases—12 jars to the case. The covers of the cases are only slightly pasted down, and can be easily and quickly removed. The jars are usually clean, and all that is necessary is to rinse them in clean water. When they are filled and labeled they may be set back in the same cases, the covers sealed, or a strong cord tied around it on all four sides. We usually use binder twine for this purpose, as it is cheap and strong. Most of the cases are handled by the cord instead of taking hold of the package. A good man can pack from 30 to 50 cases, ready for market, in a day. Neither time nor expense is required for making cases, and you have something far better for the purpose than you could make.

HOW TO LIQUEFY THE HONEY WHEN IT GRANULATES.

On our labels the following appears: "If this honey granulates, set the jar in warm water or in the sunshine, and it will liquefy."

This is another great advantage in using glass. Sometimes the honey will granulate while on the shelves in the stores; and the clerks know that, if they take it to the rear of the store and set it in the sunshine, it will soon be liquefied and ready to set back on the shelves, so that it is just as attractive as ever.

If desired the honey may be set out in the sunshine as it is packed, and heated up for

a day or two, thereby retarding granulation. If the sun is shining very warm it is better to fasten the covers down before it is set in the sun, else it will become hot enough to melt the comb and spoil the appearance of the honey. If the sun is not shining too warm, the honey can be set in the cases, and the tops left open and set out where the sun may shine on the jars as they stand in the cases. If there is any packing to be done during cool weather, or if any should be left on hand until it granulates, the jars can be removed from the cases and set out in the direct rays of the sun, and then heated up and put in shape for the market.

The illustration shows a large shipment of bulk comb honey out in the sun between our work-shop and packing-house, where it can get the full benefit of the *heat of the sun*. In this way our entire crop of honey is heated so that our trade is troubled but little with granulation.

The apiary in the background is a portion of our home yard, and shows how all our hives are shaded during the summer. We always select a location where there is small growth and thin shade, so that we are not bothered by having to shade our hives, and we have a cool open shade to work in.

Cordele, Ga.

[As we understand it, the illustration shows packages or boxes of bulk comb honey ready for shipment, but placed in the sun for a time to warm up the honey inside. It would seem to us that not enough heat would penetrate through the sides and tops of the opaque packages to warm up the honey in the glass Mason jars so that there would be any effect one way or the other on granulation. Perhaps we do not take into account the full effect of the southern sun.

It will be remembered that Mr. H. R. Boardman and Mr. E. B. Rood have for a number of years practiced setting glass jars or honey in solar wax-extractors, where considerable heat is generated—enough so that the temperature of the honey is raised to a point where granulation is arrested. It is also believed that the sun's rays have an additional chemical effect tending toward the same end. Of course, if the jars are shut off from the sunlight, as in the illustration, there would be no chemical effect.

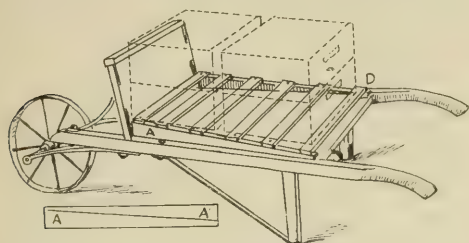
One objection to bulk comb honey coming to the North is the danger of granulation; and while it can be liquefied, many will not discriminate carefully between what is meant by *warm* and *hot* water, overdo the job, melting the combs as well as heating the honey. In the southern States, where there are no such extremes of temperature

as we have in the North, bulk comb honey would remain liquid longer and in most cases would reach the consumer before granulation set in.—Ed.]

A HOME-MADE PUSH-CAR AND TRACK FOR USE IN A LARGE APIARY

BY C. W. DAYTON

Cut No. 1 shows how I arrange a rack on the Daisy wheelbarrow so as to carry an appreciable load. My frames are 13 inches long, and the barrow will carry 4 comb-boxes, or 8 two deep; but of the standard-size frames the barrow holds 2 comb boxes

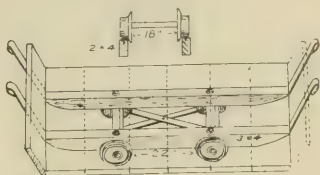


side by side, and one crosswise. The Daisy is the best barrow I have ever found for use, either in or out of the apiary. I use a wheelbarrow for wheeling honey until the honey-flow comes on in earnest. Then I use the car constructed as in Fig. 2. I made this car in 1899, and have used it six seasons. The wheels and axles are the same as are used in mining. It runs very easily, carries one or two tons when necessary, and costs \$7.00 for the running gears. It requires about \$50.00 worth of track, made of wood covered with strap iron, as shown.

Fig. 3 shows the loaded car partly inside the extracting-room, and the rear part covered with mosquito-bar frame to exclude bees. I do not run the whole car inside the building.

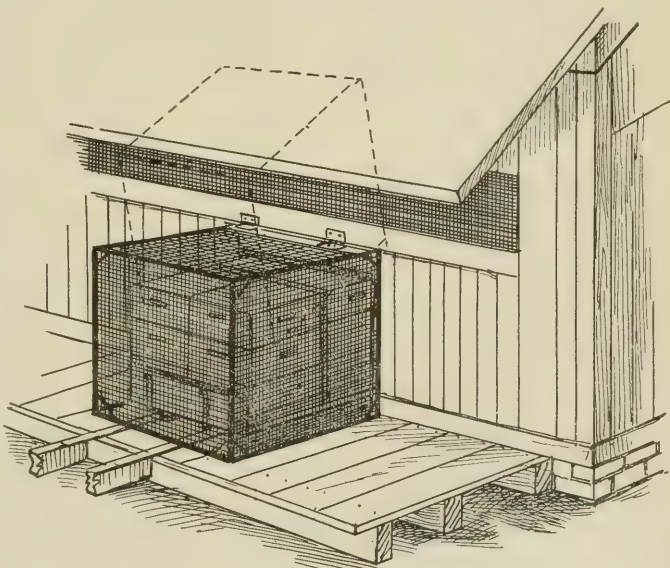
When the honey-flow is at its height I do not remove honey earlier than about 10 o'clock because the comb-builders are drowsy, and hard to brush from the combs; and I do not remove honey later than 3 o'clock, because the old bees are usually returning from the fields and will fight. But enough can be

removed between these hours to keep us busy the rest of the day and the next morning. The car track is made in 20-foot lengths, and can be put down in an hour or two. When not in use it is piled up and covered with corrugated-iron sheets.



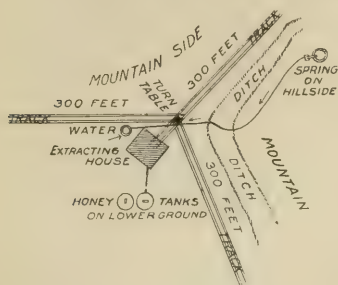
If the apiarist intends to use a car, the ground should be level; and there should be as few directions to travel as possible. My track is arranged in three directions as indicated in sketch 4. When I came here and adopted this location, every foot of the ground was so steep that a hive would roll down the mountain. These tracks are level; and the width of the embankment, including both sides of the tracks, is not less than 12 feet, and affords space for 600 colonies if necessary; but 350 are the most I have kept here. It was made with pick and shovel, which afford the best kind of exercise I know of.

Fig. 5 represents the turn-table, which cost about \$5.00 besides the labor. Fig. 6

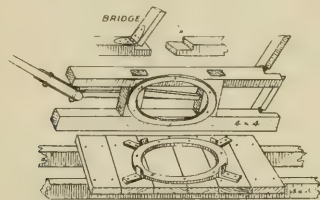


shows that the space in the track which the turn-table occupies is too short for the turn-table to turn. For this reason I use the bridge as shown, and give the table plenty of room. My track is made of 2x4 strips of wood, with straps of iron $\frac{1}{4} \times 1\frac{1}{4}$ inches, and

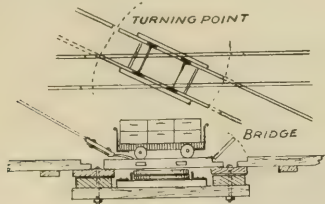
it will carry from two to three tons. Much lighter material could be used, so as to carry 500 to 600 pounds, and cost about \$20 for enough track for 200 or 300 colo-



nies. I would not do without the car, as it enables me to do about one-third or a half more work, and makes work a great deal easier. It is especially advantageous in the height of the honey-flow when every thing goes on a rush and everybody is tired.



The apiary faces the east, so that the bees begin to work early; and the mountains for miles slope toward the apiary, and are covered with some of the best honey-yielding flora. It is also well protected from cold



winds. When the hives are more than 200 feet from the extracting-room it is a little difficult to see the swarms, so I keep queen-guards or traps on the colonies which are furthest away. The canyon is very short. It seldom has any running water in it, although I arranged the ditch for it to run in, in case there should be a cloudburst directly overhead.

Chatsworth, Cal.

DISPOSING OF A HONEY CROP IN A LARGE CITY

BY ALBION PLATZ

To sell honey in a city is an easy matter: first, because of an almost limitless market and demand; and, secondly, because your customers, knowing that you keep bees, have unbounded confidence in the purity of your honey. Bee-hives, to those born and raised in a city, always excite a great amount of curiosity and interest; and to show a few frames of bees and the queen, and, lastly, a frame of newly capped honey to a party of spectators, always invites many sales.

The honey which I secured from my little seven-colony apiary located on Mt. Auburn, a thickly settled suburb about 1½ miles from the heart of the city, is all sold locally and within a radius of four miles. I run exclusively for extracted honey, and have a fixed price from which I never deviate; viz., 20 cts. per pound. I am employed in our local postoffice, and naturally come in contact with a great many people, especially my fellow-clerks, and these are my best customers. Naturally, they tell others about the honey, which they are sure is pure, and thus I have more customers than I can supply. I put up my honey in pint and quart Mason jars, and for the former I receive 35 cts., and the latter 65, refunding 5 cts. for every jar returned.

In marketing honey in this manner, there is no expense for containers, labels, fancy bottles, etc., for it is a well-known fact that a gaudy package often envelopes a very inferior article. No guarantee of purity is ever used or demanded. The buyers see the bees in my garden, and it is a foregone conclusion that the honey is pure. This year I intend to produce some comb honey, as the demand for it is steadily on the increase, and I have many demands for it already, being offered 25 cts. per section. However, I can make a larger profit on extracted at 20 cts., and would rather stick to the latter, as it is easier to produce, and I can secure almost twice as much per colony. I would advise the small beekeeper to run for both comb and extracted, if he has the equipment, and in this way all purchasers are satisfied.

I advise all who have a taste for apiculture, and who have a little spare space in their back yards, even though they live in congested suburbs, to keep a few colonies of bees. There is no better recreation for the city man, and the returns in honey and money always justify the little time and energy spent on the pets.

Cincinnati, May 17.

DEATH OF ISAAC CARTER.

My father, Isaac N. Carter, died May 7, 1912. He had a nice apiary, and was a great reader of GLEANINGS.

Recknor, La., May 18.

CHARLEY CARTER.

Heads of Grain from Different Fields

Bees a Nuisance in Strawberry-picking Time

In conversation with a young man who left his present position to go back to gardening and small-fruit raising, I spoke of beekeeping. He said, "Don't talk bees to me." I asked him why. He said that in eastern Canada where he once worked, a large producer of strawberries, blackberries, and raspberries was located near an orchard in which were about 200 colonies of bees. He said that they did not bother any one until picking time, when the boxes were filled and placed in the shelter of the bushes to be collected. When the collector came along he found the berries covered with bees. Of course, the person collecting the boxes was in danger of being badly stung. Now, what I want to know is, while we have the word of many fruit-raisers and beekeepers that bees will not injure plums, grapes, apples, or peaches, all of which are hard-skinned fruits, have you or any of the contributors to GLEANINGS had any experience with bees and the soft-skinned fruits such as the three berries referred to?

HARVEY G. BRANT.

St. Paul, Minn., April 1.

[It is possible and even probable that, during a dearth of honey, bees might attack overripe raspberries, blackberries, or strawberries, especially if the fruit is bruised in handling. In a case like the one referred to, the beekeeper should make some arrangement with the fruit-grower to induce him to cover all fruit with mosquito-netting as fast as picked. It would take but a moment of time to lift up a cover and place the freshly picked berries under it. It is useless for beekeepers to deny that bees will sometimes attack overripe or broken fruit, especially fruit like strawberries or raspberries. But as a general thing, when strawberries, at least, are in bearing, clover is beginning to yield. When blackberries begin to yield, there is apt to be a dearth of nectar. It is at such times that the beekeeper and the fruit-grower should get together in a friendly way to avert the trouble. It can always be arranged amicably when proper precautions are taken in advance.]

In this connection it is proper to state that bees will not attack sound fruit such as peaches, plums, cherries, etc.; but whenever there is a dearth of honey we always advise having any fruit, as soon as picked, put inside of a building or under a netting. Even if there are no bees around, the fruit should be screened to keep off the typhoid fly, commonly called the domestic or house fly, as that insect can do a thousand times more damage to the human race at large than a few bees on broken fruit.—ED.]

To Avoid Uncapped Cells in Comb Honey

I have been keeping bees for three seasons, and have now six colonies. I should like to go into it on a larger scale if I thought I could make it pay. I am producing comb honey, and the larger part of the sections are not completely sealed over. In some sections, perhaps only one or two cells are not sealed; still, it is enough to drip in handling. I should like to inquire what is the best method of disposing of these sections. I had thought of cutting the honey from the section box and straining and bottling it. Kindly tell me the proper way to do this. Should the honey be heated, or is it bottled cold? I am using eight-frame hives, and mostly plain sections with fences, although I have used beeway sections with the slatted separators, but this does not seem to make any difference in getting the cells all sealed. I use a starter of about one inch in each section.

Ware, Mass.

CHAS. H. WALKER.

[It is almost impossible to get every cell sealed in a section of honey, taking the super as a whole. You will find some, it is true, that are perfectly sealed; but these generally grade as fancy. The No. 1 grade may have unsealed cells next to the wood. There is bound to be a little drip from these cells, but still not so very much either, for the honey becomes very thick in such cells after standing a short time, and is, therefore, less likely to drip.]

If you have a very large proportion of unfinished sections, consisting of those only partly sealed, say two-thirds, it may be that you give too many sections at once. This is sometimes the case when the

new super is added next to the brood-chamber, the one nearly finished being placed on top. The trouble is, that the flow may end suddenly, leaving these upper sections filled but not capped.

There is a plan which tends to do away with unfinished sections, but which requires much more work; that is, to shift the sections from the sides of the supers to the center, removing those in the center just the minute they are finished. Such honey is always whiter and nicer, being freer from travel-stain, and there is much less chance for a lot of unfinished sections at the end of the year.—ED.]

An old Clipped Queen Found Sealed up in a Cell

I discovered a peculiar "stunt" yesterday when looking over a strong Italian colony in a Danzenbaker hive. I discovered twenty capped queen-cells; and, though I looked the frames over several times for the queen, I was unable to find her. Upon cutting out the queen-cells to prevent swarming I found the old clipped queen nicely sealed up in one of the cells. She was in head first. The cell was a very blunt one, away from the other cells, and the bees paid no attention to it. I examined it very closely before cutting it, as it looked rather peculiar, and not one bee was on that cell while I was watching it, although there were hundreds on the comb. The queen was all right about a week ago, and, so far as I know, she was laying at that time. When I pulled the dead queen out she was covered all over with royal jelly.

I wish to mention here that I am a believer in plenty of ventilation to prevent swarming, and these cells are the first I have found in my twelve colonies since 1909. See page 320, May 15, 1910. Some of my colonies have four comb-supers on, all being filled with honey, and there is no sign of a swarm except in this one colony, and this is something unusual.

WALTER T. ACKERMAN.

Huntington, W. Va., May 22.

[A young virgin had probably come from this cell while the old queen was still in the hive, the swarm having been delayed by bad weather, possibly. This old queen, attracted by the royal jelly, very likely went into the cell, and the little hinged door in some way was swung back into place, so that the bees did not suspect any thing wrong, but just sealed it down. Young virgins have been found in this predicament, but we do not remember having seen an account before of an old queen being thus trapped.—ED.]

Veiling Horses when Working Among the Bees

That plan of Louis Scholl's, page 682, of removing loaded wagons from near apiaries or robbers is very good, but a slow way. I used a rope for two seasons ten or twelve years ago, but discarded it for the more simple plan of veiling the horses by slitting an ordinary grass-sack on one edge from the top to within four inches of the bottom. I slip the sack over the horses' heads and tie under the throat with string placed there for that purpose. Then I put the breast-yoke and doubletrees to the team, slip the yokepin on, drop the pin into the doubletrees, and I am off in 30 seconds. As a rule the bees are not bad if horses do not shake their heads. These sack veils eliminate that.

A CAPPING-MELTER THAT FURNISHES STEAM FOR THE KNIFE.

Severin's honey and wax separator, Dec. 15, p. 756, looks pretty good after the whole is once melted, but looks as though it would be slow work melting, besides using too much fuel. It is so open at the top that one would have to have two stoves going to heat this and the knife.

I have one of my own invention that I have used for several seasons that requires only one gas-stove to keep the whole outfit hot. My melting-tanks are double-walled. The outside tank is 16x24, and 18 inches deep, while the inside tank is 14x22x16 inches. At 2½ inches from the top of the outside tank is drawn in even with the top of the inside tank; then both are soldered together, air or steam tight, so that no steam escapes except through the steam-knife, which is attached by soldering an ordinary oil-can spout to the screw top or the place where I put the water in. In this way the honey

and wax are melted and the knife is heated, all with a one-burner gas-stove.

The stuff is melted, then gravity fed into a separator similar to Mr. Severin's. This kind of machine never clogs, as there is a regular honey faucet passing through the outside tank and connecting with the inside one, through which every thing passes as fast as melted. The heat is not only conserved, but the heating capacity is much greater, as the inside tank is hot on the sides as well as the bottom. The inside tank has a partition six inches from the end which has the faucet. In this partition there is a four-inch slip gate to raise and lower, similar to that of the old-fashioned syrup-vats, easy to slip and unclog if necessary.

Of all uncapping devices, the steam-knife, in my opinion, leads. When some one says that he has a machine for uncapping honey, and I find that the machine does not save the wax, then I fail to get interested. A machine that does not save the wax has no place in my apiaries. Show me the man who has 500 colonies who will give me the wax for extracting his honey, and we will make a deal at once. With the steam-knife one gets all of the wax besides leaving the comb in fine shape. I can take my steam-knife and shave cells down level when there is neither honey nor cappings on them, opening the cells without destroying the cell walls, and can take off a sheet of wax merely hanging together by the cell walls, resembling a queen-excluder.

Mr. Crane, page 680, Nov. 15, says that stirring honey undoubtedly makes it candy more quickly. My opinion is the same, therefore I do not take well to the honey-pump, much discussed of late. It's my opinion that, the less one handles white nectar, the better the quality and flavor. For example, take two nice white combs of honey, extract one in the extractor, and just slash the other with a knife. Let the honey drain out, then taste the samples.

Pasadena, Cal. J. F. CROWDER.

Carbolized Cloths an Aid in Taking Honey off Rapidly

I use crude carboic acid, sprinkling it on 4 or 5 cloths, and put them on as many hives. As soon as one is taken off it is put on another so as to have them all covered, and to give the bees time to go down. Very little bruising results, and the honey can be taken off faster than by any other method that I know of.

QUEEN-EXCLUDERS WITH THE SLOTS RUNNING CROSSWISE.

There is much talk about queen-excluders. Some are for and others against them. I am for them, and would not produce extracted honey without them, any more than I would run a dairy without a cream-separator. When the bees get strong I place the brood over the excluder and give the queen below some empty combs to lay in that keep her satisfied, and there is no swarming to bother with. My excluders are all zinc. They are the full size of the hive, outside dimensions, and the holes are made crosswise, thus giving the bees a chance to get through anywhere. There is no danger of breaking the excluders as with the wood slatted ones that hold together only a few years.

When are we going to have that wired foundation? It seems to me that is the only thing needed now. If we could get wired foundation up and down in the frames, and then put wires in ourselves lengthwise, we would get some perfect combs.

Brush, Colo. DANIEL DANIELSON.

If the Middleman is Cut Out, the Cost of Selling is No Lower

The middleman is not in the way. He really is necessary. Without him there would be no market prices. If there were no middleman it would affect the farmer more than the honey-producer. The farmer's time is all taken up. He has no time for other business; and if it were not for the middleman it would be necessary for him to sell the produce that he raises on the farm, and he would be obliged to deliver it from house to house. If he has some beef to sell he must first dress it; then sell it by the pound from his wagon. If it is in the summer he must have ice, etc. Suppose it takes him two days a week to sell and deliver his produce. He must then hire a man to take his place on the farm, or to sell and deliver his goods; but he can not hire

a man for two days a week. He must be engaged by the month or year, and must be well paid in order to keep him.

There is no market price. Every producer sets his own price, which must more than cover the cost of the hired help. As a result the consumer pays as much or more for his eatables than he does now with the middleman. The hired help is the middleman in the case mentioned. Every farmer must do the same thing, and some of them can sell more cheaply than others. The result is easy to see.

Suppose one is several hundred miles from a large city. The home town will soon be supplied. Then produce must be shipped to the city, and there must be a man there to deliver it to the consumer. There is always a middleman for the large producer. The small producer can produce and sell his own crop of honey, etc., with profit; but there may be more profit for him if he puts in all of his time as a producer and sells at wholesale prices.

Any article that does not spoil, such as honey, can be sold by advertising in newspapers and magazines; but the newspapers and magazines are really middlemen, as they are between the producer and the consumer, and they must be paid.

A mail-order trade may be all right, but it also takes time and money to get the trade. No doubt it would take twice as much time and money to get the trade, with every producer selling, by advertising in the papers, and through the mails, etc. Parcels post would be all right, but in time the mail-order houses would get all the trade, and then they would raise their prices.

The mail-carrier would have to have a team of horses and a dray wagon to deliver the goods, and double the pay that he gets now; and then he could not make as long a trip as she does now. Parcels post may not be as cheap as it seems.

The need of a class of distributors must be recognized; but we must demand it, and a condition will come when these distributors will be more closely associated with us as producers, for co-operation will extend the terminal markets.

Greenville, Wis.

EDWARD HASTINGS.

Selling Honey by "Talking"

I believe heartily in the value of advertising the food properties of honey. I began the production of honey four years ago by buying 53 colonies of bees. Up to that time I had never, to my knowledge, been closer to a yard of bees than a city block. I now have 180 colonies. In 1910 from 100 colonies I produced 11,000 lbs. of honey—extracted exclusively. This I disposed of in my home market, a city of 18,000, at 15 cents per pound net. Up to the time I introduced extracted honey here, comb honey was the only kind ever seen; but now the demand for my goods is greater than I can supply. My honey retails here at present at 60 cts. per quart jar. To create this demand I have had to keep myself and my bees before the public by any means that I could command. I have displayed my extractor at our local fair, lectured on bee life at churches, and talked honey at every opportunity.

In order to interest Canton College I donated them 120 lbs. of honey to use in their "Domestic Science" course, and it occurs to me that the honey-producers in the other parts of the country can find this a sure means of getting the food value of honey taught, not only to the students but in the homes to which they will go between school terms. It will be necessary to teach the teachers themselves, as I find that this subject is one upon which they are woefully ignorant; and it seems to me that it's up to the honeyman to show them the light.

Ogdensburg, N. Y., Dec. 20. W. T. DAVIS.

Carbolic Cloths do Not Kill Brood

In Stray Straws for April 1 Miss M. Candler is reported as having used carbolic cloth largely, and it did its work well, but killed brood. Although I have used these cloths under all circumstances I never have known them to do that. I am well acquainted with some of the best beemen in Carmarthen, South Wales, and I've never heard a word concerning the killing of brood, nor have I ever seen a hive where it failed to do its work when used in the right manner. I myself have great faith in it, and shall always use it, when necessary, in preference to the smoker.

R. V. HEYHOE.

Toronto, Ont., Canada, April 20.

Our Homes

A. I. ROOT

Even Christ pleased not himself.—ROMANS 15: 3.
 Even the Son of man came not to be ministered unto, but to minister, and to give his life a ransom for many.—MARK 10:45.

The character of our Lord Jesus Christ stands out clear and sharp as differing from that of any merely human being who ever lived. As described in our text, "he pleased not himself." In fact, the more we study the account of the life he spent here on earth, the more we are impressed with the fact that he never used his wondrous power in any way for his own personal benefit. He never thought of self. Even when wearied by days of busy toil he never seemed to think of either rest or refreshment. The accounts we have of his taking food, or most of them, seem to be incidents where he taught some lessons by the partaking of food. He once convinced his followers, after his resurrection, that he was still flesh and blood by eating with them. When thirsty after a long travel, and he met the Samaritan woman at the well, he apparently forgot his thirst in leading her up and out of her wretched condition so that *she* might partake of that "living water;" and when his disciples, after they had brought food and urged him to partake, he replied, "I have meat to eat that ye know not of."

This whole matter was brought vividly to my mind by an address delivered by the Rev. Joseph Clark, in Columbus, at the Congregational State conference a few days ago. In his excellent and soul-stirring address he said something like this:

"My little girl came to me a few days ago and propounded the question, 'Papa, can we be happy *always*?' "

He said he studied over the matter a while before he answered a question of so much moment. After a little reflection he replied:

"Yes, my daughter, we *can* be happy *always*."

But immediately she propounded a question of still deeper and of more vital moment. It was this:

"Papa, I am not always happy. What is the trouble?"

Before answering her he meditated again—perhaps more deeply than he did before; but he finally replied:

"My daughter, if we are always busy in trying to make somebody *else* happy, we shall be happy; and it is the only way to live and get *real* happiness."

Now, my good friends, you who read these Home papers, let me put the question

to you—are *you* always happy? Suppose I should ask all of my readers who are *always* happy to raise their right hand. How many hands would I see? Suppose I should ask again, "How many of you are happy a part of the time?" I hope every hand will go up. But if I should ask, "Is there one among you all who is *never* happy?" may God forbid that there should be even *one* such person! When a poor child of humanity says he is *never* happy, he is coming pretty close to the terrible suicide mania that is now cursing our world of people more or less. Perhaps there are some among you who are *seldom* happy. My good friend, the trouble is *surely*, as Dr. Clark put it, because you have been seeking happiness from a selfish point of view. You have got it into your head that the world owes you "happiness," or, say, that it owes you a *living*, whereas the world really owes you nothing; but *you* owe to the world a big lot. "Not to be ministered unto, but to minister."

Some of you may turn around and ask the question, "Mr. Root, are *you* always happy?" I answer frankly, "No, I am not always happy; but when doing my duty, working honestly and unselfishly for the great sea of humanity around me, there is an undercurrent of happiness that is seldom or never very *much* interrupted or disturbed."

I can always thank God for having given me a human life to live; and whatever trials or temptations or disappointments and perplexities meet me, I can, *thank God*, say honestly and devoutly, "I *know* that my Redeemer liveth."

I have told you in former Home papers how that little prayer, "Lord, help," often lifts me up out of darkness and into the light; and when a contrary and stubborn spirit seems to get possession of me, I involuntarily breathe that celebrated prayer of David, after he had sinned and fallen—"Create in me a clean heart, O God, and renew a right spirit within me."

Now, we have been discussing so far, at least mostly, our spiritual experiences. I find that, as I grow older, and, in fact, all through my life, to be happy and enjoy life I must take care of my physical body. Of late I can not stand office work or reading papers and magazines much more than an hour at a time. I have, hanging up right handy, near the back door a very light and bright shining hoe. Whenever I am done

using it I rub off the clean steel blade so that it fairly shines. Well, two or three times a day I take this hoe in hand and work in the garden until the perspiration starts, or until I feel a little weary. Then I stop and greatly enjoy a good drink of boiled rain water. I do not care to have it ice-cold; but I try to keep my enameled pail of drinking water in the coolest place about the house, especially in hot weather.

Some of you may suggest that getting happiness by using that bright hoe is working for self, and not quite in line with what Dr. Clark said to his little girl. But, my good friend, there are many ways of using a "bright sharp hoe," where it is not all self. The children and some of the grandchildren have gardens around our home; and I frequently use this particular hoe to teach them lessons in gardening. A few days ago I said to my youngest daughter, "Carrie, your tomatoes need hoeing. I will hoe just one row for you for a pattern."

She thanked me; but another daughter, "Blue Eyes," who was near by, looked up with a roguish twinkle in her eyes and said, "Father, I wish you would hoe one row of our tomatoes too, just for a pattern."

I assured her it would give me great pleasure to do so. Now, Carrie's tomatoes were in a little bed of three rows, with four or five in a row; but when I started to do some more "sample work" I found Mrs. Boyden's tomatoes were all planted in one long row clear across the garden. You see they "had a joke on father."

There is another way in which that bright hoe comes in play in the line of our texts. By its use I raise considerably more garden stuff than Mrs. Root and I alone can take care of; and one of the rare pleasures of having a garden is where you have a little surplus (or perhaps if you have not) of carrying samples around to your neighbors, and surprising them in two ways—first, by the excellence of your skill as a gardener; and, second, your disposition to *divide* with your neighbors the good things that God in his mercy has given you as the reward of your toil.

I have been studying over this matter of being happy always, for same days past, and I have been trying to think of some one person who seemed to be happy always. The one who came nearest to it was my good mother—bless her memory! From early childhood clear up to old age she seemed always bright and cheerful. The one text I have quoted, "I know that my Redeemer liveth," was one she quoted often. Whatever happened to make the rest of the family feel sad and sorrowful, she always took a bright view of the case. Her whole

life reminds me of a beautiful thought expressed recently in the *Sunday School Times*.

SINGING ALWAYS.

Nothing can quench the song of a heart that really believes in the love and power of God, and that has accepted this in Christ forever. If the song is quenched, it is because we have, for the time, ceased to believe in God's love or power; but that we need never do. As Victor Hugo wrote:

Be like the bird, that, halting in her flight
A while on bough too slight,
Feels it give way beneath her—
And yet sings—
Knowing that she hath wings!

Our wings are the love and the power of God in Christ who is our life. Nothing can overbear these wings; nothing can deprive us of the joy of the consciousness of their presence except our own refusal to let Christ share himself fully with us. And even that refusal Christ can overcome, if we honestly ask him to do so. His joy may be our joy, always. Everything else may give way beneath us; but Christ, never. Therefore "I will sing with the spirit, and I will sing with the understanding also," and all the powers of earth and hell shall not quench my song.

The reason why the bird mentioned in that beautiful stanza kept on singing, even though the slender bough gave way when she alighted on it, is because she "had wings"—wings that never failed, and which would always buoy her up. My mother's life always seemed to have the comforting and sustaining assurance that there were wings out of sight that would always prove a "present help in time of trouble." My good father, however, who, although a professing Christian, and who finally died trusting in the Bible promises, had his ups and downs. He used to get what we called in olden times the "blues;" but mother's bright and cheerful face was *usually* a never failing remedy. I have often thought that it was providential that they two were brought together. At one time in his life, during a quarrel over a division fence, he talked about withdrawing from the church, and said to our good pastor that he would have withdrawn long before had it not been for his "companion." The pastor replied something like this:

"Brother Root, that devoted 'companion' of yours, if you will continue to be guided by her, will ultimately bring you into the kingdom of heaven."

Now, my friends, let me exhort you, in closing, especially if you want to thank God and enjoy every moment of your life, to be always *busy*. Have a bright clean hoe like mine; and whenever you feel that streak of unhappiness coming on, get busy with the hoe; and when you get busy, remember what good Dr. Clark told his little girl. Be contriving and planning and working, or experimenting in something to make *others* happy; and before you know it or realize it you will be happy yourself, and singing like the bird on the swinging bough.

There is a beautiful promise in the 91st Psalm which I think will make an excellent ending for my talk on happiness.

There shall no evil befall thee, neither shall any plague come nigh thy dwelling. For he shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone.

JUDGE LINDSEY, OF THE JUVENILE COURT OF DENVER, AND THE WAY RIGHTEOUSNESS

IS PROSPERING OVER INIQUITY.

Mr. E. R. Root:—Perhaps you have seen it in the papers; but I want to tell you that the corporations have been thrown out of politics in the election in Denver. This is the culmination of the fight begun several years ago by Judge Lindsey, the story of which is told in "The Beast and the Jungle." The victory was so sweeping that every office was captured by the Citizens' party headed by former Assessor Henry J. Arnold, who is now Mayor, and Judge Lindsey, who is still Judge of the Juvenile Court. Judge Lindsey ran over two thousand votes ahead of the Citizens' ticket, and the Citizens' ticket polled about 41,000 votes against about 30,000 for the Republican and Democratic tickets combined.

You remember that I told you about the assessor being thrown out of office by force at midnight? Well, he is now mayor. The reason that he was thrown out of office by force was because he would not extend an illegal tax levy upon the assessment rolls.

Another thing was the fact that the former machine administration would not call a special election to vote on commission form of government, petitioned by over twenty thousand voters. This is provided for in our initiative law, but they disregarded it, and are now supplanted by officers, every one of whom is pledged to commission government.

Why not ask the readers of GLEANINGS to express themselves on their choice for president, also on government ownership of telegraphs, express companies, also any other public questions of national concern?

I am enclosing a letter, the fourth during the past month from different GLEANINGS readers who have invested their money with this man Degge, who is a promoter of a score or more of enterprises, not one as yet a dividend-payer. He has had fraud orders issued against him several times, I believe. Our local banker referred to his schemes as thirty-cent propositions. What can GLEANINGS do to get these people to write to me *before* they invest, and not after?

Boulder, Colo., June 2. WESLEY FOSTER.

May God be praised for the good work that is going on in Colorado. And, by the way, it may save somebody's honest earnings by presenting also the letter you mention.

Mr. Wesley Foster:—Would you kindly give me some information regarding the enterprises in which W. W. Degge is interested, in and around Boulder? Do you consider him thoroughly reliable? I am a stockholder in his company, and should like to know your opinion of his chance of making good. I am an old beekeeper, and have invested my earnings with him, and should like to know through a fellow beekeeper his standing in the community in which he lives. I have been reading your letters in GLEANINGS, and felt that I could rely on any information you could give me regarding M. Degge.

Appalachicola, Fla., May 20. W. P. DUNLAP.

Just think of it, friends. A hard-working beekeeper, and one also, as we take it, well along in years, has wasted his hard earnings by listening to some wild schemer and promoter. Every little while we hear of somebody who has toiled hard for years with poultry, bees, or market-gardening, and then is duped out of it all by some

schemer. Is it because so many are crazed to get a *bigger interest* than they can get at their bank, or, say, of their near neighbors, where it would be perfectly safe? Once more, do not think of investing money with *anybody* who talks to you about "dividing his profits," "profit-sharing," etc. And, above all, write to somebody *you know* and can *trust* before you think of "investing" *any thing, anywhere*.

ST. CLOUD, FLORIDA, THE HOME OF THE OLD SOLDIERS, ETC.

Mr. A. I. Root's attack on Florida, and St. Cloud in particular, is unwarranted and not sustained by facts. I visited St. Cloud recently, and met and talked with a score of citizens picked at random on the streets, and I found them all happy and contented. I noticed that not many of them were trying to cultivate the soil, but they were getting fullest enjoyment out of life. St. Cloud's population, as you state, is composed of old soldiers. My father is an old soldier. He enlisted in the 144th Ohio. I brought him to this State three years ago. I located him at St. Petersburg because there were quite a number of G. A. R. men there. If I had known about St. Cloud at that time, or had investigated any of the other soldier colonies in the State, I would have located him among his old comrades. My father is too old and feeble to work. I suppose that 80 per cent of the soldiers at St. Cloud are too old to get out in the sun and plow and dig and harvest. I did not expect my father to work; but I did want him to enjoy the declining years of his life down here in this sun-kissed country where he could get out his fishing-rod and spend hours on the shores of the bay; to sit on the threshold of his home, and, as the last lingering rays of the sun tinted the skies into glorious hues, smoke and ruminate, and retire with the peace that on the morrow it would be another day without care.

And at St. Cloud you will find other fathers and other mothers, bent with age, and with worry of other days, crippled with rheumatic pains, some palsied, some pitifully crippled, who are thanking God that they are down in Florida, away from the extreme cold and the extreme heat, where a generous government's bounty is sufficient for their small needs. I know what I am talking about. I know of a mother who spent eight months of each year inside of a superheated home, and of a father who suffered hemorrhages, and was thrice given up to die. These two people were brought from Ohio to Florida, and that mother to-day spends every day of the 365 out of doors, feeding and tending to her flock of chickens. She in three years has become twenty years younger; and that father is taking on flesh, and now laughs at the doctors, when before he was in fear of them. Is not that worth more than money? Is money every thing? Can you not talk Florida without measuring it in dollars and cents?

Suppose your brother-in-law had a brother who bought a piece of property, as you say, for \$100, and was offered \$400 and refused it, and is now sorry he did not sell because he can not get an offer of \$100 for it. Does that signify any thing except that he was grasping and greedy? He wanted more than \$400 for the \$100 lot—may be \$600 or \$1000. He took a gambler's chances; and because he did not win out he is a welcher. He is kicking that the game was not played fair.

Those who bought a \$100 lot, and improved it, and caused vines to grow about it, and oleanders and hibiscus flaunting their colors in front of it, and fruit trees in the rear yard, under which a flock of chickens disport, would not sell for \$1000 or may be \$2000, because it is home, and in that home there are health and contentment, and every morning begins a fresh day.

I am not going to answer your general attack on Florida nor that on St. Cloud. You can see a malignant spirit in all of it. I am simply writing to you to show you another view-point of the old-soldier life in Florida, and I trust you will give this article the same prominence you did the unwarranted attack.

As I write a man brings me a photograph of a

mound of watermelons on his place. This man was a traveling salesman out of Cincinnati. He came here seven months ago and bought ten acres of second-class pine land. He grubbed it and cleared it. He told me that he had sold \$1300 worth of melons off the tract, has two more carloads to ship, and has set out a ten-acre grapefruit grove. He said he made more money, and had more fun in the six months' residence in Florida, than a year's hard work "on the road." And this is land which you are abusing. This man mixed some Ohio brains with the soil, and that will grow any thing in Florida except *Presidents!*

Tampa, Fla., June 6.

W. B. POWELL.

My good friend, we submit your letter to our readers as you request, and I would submit the matter to them as to whether you or I show a "malignant spirit," as you put it. If you have been reading GLEANINGS right along I think you must agree that I have been giving both sides of the matter pretty fairly. What you say about old people getting a longer lease of life, comfort, happiness, etc., I believe is generally true over nearly all of Florida; and may God be praised that we have at least one State in the Union where we are comparatively free from frost and snow. But at the same time you have not explained to our readers how the St. Cloud syndicate justify themselves for paying 80 cents or \$1.00 an acre for land, and then selling it to the old soldiers for \$20.00 or \$30.00 or *more* an acre.

Perhaps I might suggest to our readers that, as secretary of the Board of Trade of the beautiful city of Tampa, your opinion and ideas may be somewhat biased. I am glad to see people stand up for their own State, town, and county—yes, and for their own neighborhood; and I am well aware that large numbers of my Florida friends are pained and sometimes vexed at me when I mention such trifling things as redbugs, long dry spells, damaging frosts, etc. Well, I am trying hard to give our readers, now scattered in almost all nations of the earth, the *real truth* about every spot on the globe.

ST. CLOUD, FLORIDA, AND SOMETHING ABOUT IT AS A HOME FOR BEEKEEPERS.

The following, clipped from the St. Cloud *Tribune*, explains itself:

G. A. Bleech came here two years ago in January from Hillsdale County, Michigan, where he was engaged in the bee business. His health then being poor, he decided to try Florida to see what the climate would do for him. When he first came he brought with him three high-grade queen bees, and from them has 12 colonies. They are doing well, and he expects to fill his hundred hives without trouble. He thinks this an ideal country for honey-making. He has experimented enough to satisfy himself that he can do better than in Michigan, with flowers every month; and with orange, peach, and magnolia blossoms in season he says as fine honey can be produced here as anywhere in the country. It requires care and watchfulness and work, he says; but that is true of any industry if a man expects to succeed. Mr. Bleech says his health is all he could desire, and he's here to make this country his home. He is incensed at A. I. Root, of GLEANINGS IN BEE CULTURE, who seems to take pleasure in saying ill-natured things about St. Cloud, writing

to his publication at Medina, O., from his winter home at Bradentown, Fla. Mr. Bleech asked the *Tribune* to reply to an article in the May issue of GLEANINGS, but life is too short. This is not Mr. Root's first offense; but St. Cloud is growing, and will keep on growing, in spite of Mr. Root and other grumblers and soreheads. Mr. Root likes Bradentown, but doesn't like St. Cloud. Mr. Bleech doesn't like Bradentown, but likes St. Cloud. And there you are. We are glad Mr. Root likes Bradentown, if he does; but a man who is everlastingly trying to control the affairs of the universe is a pretty hard man to be suited anywhere.

As I have remarked before, our good people in Florida, as well as in other localities, do not like to have any thing said (especially in print), against their own town and locality. I *do* like St. Cloud; but I *do not* like the idea of charging old soldiers thirty or forty dollars an acre, or ever so much more, for land that cost the promoters only eighty cents or a dollar per acre. Our good friend Bleech has been only a short time in St. Cloud, as I take it; and I think he will soon discover that neither in St. Cloud nor in any other place in Florida, are there flowers enough to produce honey, to amount to any thing, "*every month in the year.*" During the past season my neighbor Rood, with several hundred colonies, has secured so little honey that he is just now wanting to *purchase* some in order to supply the demands of his regular customers. Once in a while we have a season when Florida gives wonderful crops of honey; but, like almost all other localities, so far as I can learn there are also seasons, or special times during *every* season, when bees will starve unless they are fed. If I am not right in regard to the above I wish the veterans in the bee business would correct me. I do not believe it is true that I "take *pleasure* in saying ill-natured things" about St. Cloud or any other place.

EXAGGERATED STATEMENTS IN REGARD TO FLORIDA, ETC.

On page 356, June 1, I gave a letter protesting against our accepting certain advertising from the Seaboard Airline Railway. I made a clipping of this and forwarded it to headquarters of the S. A. L., Norfolk, Va. Below is their reply; and as it gives some valuable facts I publish it entire:

Mr. A. I. Root:—This will acknowledge receipt of your kind letter of June 10, accompanied by some criticisms on the part of Mr. A. W. Foreman, Whitehall, Ill.

The land area of Florida is 54,861 square miles; and while the correspondent has doubtless been in Florida, his article would indicate that he did not spend sufficient time to investigate conditions in so large an area. The result of the efforts of Mr. Root is a complete answer, and can be multiplied many times by individual instances in the Manatee section. We do carry an advertisement in the *Rural New-Yorker*, and read that valuable journal regularly. Mr. Foreman refers to the entire area as being sand. The 54,861 square miles in Florida

exceeds the area of Pennsylvania. It would probably be just as correct to say that all of Pennsylvania was coal land. The Manatee book and the developments of the Manatee district have been most carefully selected, and they do not tell of the maximum possibilities of intelligent and careful agricultural methods under the best conditions in that section, as we used the most conservative method. Mr. Foreman would doubtless be surprised to know that the Palmer interest, who already have a very large interest in Manatee County, have recently purchased 680 acres of land just south of Bradentown, the consideration said to be \$23,000, or nearly \$40.00 per acre. Land to bring this sum must have value, and it was sold to people who already have an interest in the landed area of that section. Another Illinois citizen is reported to have purchased 250 acres in the Manatee district for the purpose of developing citrus groves. Price is not reported; but the location of the property leads us to believe that it was no small sum per acre. If

Mr. Foreman will take the United States census records, showing the almost marvelous increases in the population of southern Florida, Manatee County especially, for the past ten years, I am satisfied he would have a better line of information on the State than now appears to have reached him.

Norfolk, Va.

J. A. PRIDE.

It is quite a joke on our good friend Foreman that the *Rural New-Yorker* does carry the advertisement of the S. A. L., although it may not be exactly the advertisement that friend Foreman refers to. I happen to know quite a little about Mrs. Potter Palmer's purchase, for it is right close by the "Robinson Crusoe" island where I spent two winters.

Poultry Department

STODDARD'S CONVERGENT POULTRY-YARDS

How Many Miles can a Hen Travel in a Day? or, if you Choose, How Many Miles does a Hen Travel in a Day? and, Finally, How Many Miles can a Hen Travel in a Day Without Impairing her Egg Record?

Some of you who have not considered the matter may say a hen does not travel even one mile; and may be you will add that, if she is to make a good egg record, she ought *not* to travel half a mile. Philo, you know, has been trying to teach us that a hen will lay more eggs, if she does not travel at all, than if she has the run of the farm. He would, however, dig up the ground in her little pen, and bury in it some grain so as to induce her to do work that would probably be the equivalent of quite a *little* travel.

Some years ago I visited our good friend Hunter, at Seven Mile, Ohio. He is the great seed-corn man, you know. His dwelling is set on a very pretty little hill or mound. The ground slopes away from the house in every direction; and corn-growing has been so much of a hobby all his life that his cornfields come clear up to the house in every direction. As fences would be in the way, so far as I can recall he has none. The men start out from the barn near the house with a team in the morning, and go off cultivating half a mile or more in every direction, doing something useful, "going and coming." Instead of going through a long lane to get to their work, their work *commences* right at the stable and then *ends* at the same spot. Well, friend Hunter has a lot of chickens. They pick up their food while roaming through the cornfields, following the plows, picking up grubs, etc., and earning their living in many ways besides the eggs they lay.

Do you ask how he can have any garden without fences? Well, he endeavors to have his garden so far away that the chickens will not get up to it. When I was there he had a beautiful garden nearly a quarter of a mile from the house; but some of the most enterprising of his poultry had found it and "got there" after all. I think I never saw a handsomer or healthier lot of chickens. They just crowed and cackled and rejoiced from early morn till dewy eve—chickens little and chickens big; and I believe that he or his good wife or the children always have excellent "luck" with chickens, while a neighbor who had all modern appliances, including lamp-heated brooders, had dead chickens by the score. At the same time that friend Hunter's chickens were going everywhere in the field, this neighbor had his chickens shut up, and lamps burning to "keep them warm" so they could not "catch cold." Pardon me if I am telling this story over and over again, for it is one that can not be told too often nor with too much energy and vehemence. Mankind all over the world are spending money in building air-tight houses in order to avoid drafts and catching cold, when plain common sense ought to send them outdoors into the fields, where they can get health and strength by digging and scratching for a living. I am talking about chickens and people both.

Well, perhaps you would like to know what I am driving at. Suppose a laying hen can walk a mile or half a mile, and still do a good job at laying eggs. What of it? Well, I am proposing that this same laying hen shall run errands and help earn her own living as well as lay eggs; and I hope she will lay *more* eggs while she is doing errands and saving her owner steps. I have not yet got around to the point where I can send her to the postoffice, grocery, and other

places, but we may accomplish it after all. As I said, I do not exactly expect to have her carry her eggs to the *grocery*, but I do expect to have her bring them up to the *grocer's wagon* instead of having her owner travel around to the nests to pick up the eggs in a basket. Let us now go back a little.*

As I told you on page 578, Sept. 15, 1911, between thirty and forty years ago I was greatly excited in consequence of a series of articles in the *American Agriculturist*, entitled "An Egg-farm." The writer was our veteran friend, H. H. Stoddard. He had planned to have poultry-houses located all over the field—I think about ten rods apart. They were arranged like the cells of a honeycomb. A low-down wagon went to each house, carrying water and grain, and to gather the eggs, etc. I started such an egg-farm in our basswood orchard at the time it was planted, in 1872. I soon decided, however, that one objection to Stoddard's egg-farm was the amount of travel incumbent on the owner in order to keep things in running order. Well, this

* Our stenographer suggests that I, unlike Mohammed, who, being unable to bring the mountain to him, concluded to go to that, have solved that problem by bringing the chickens to me instead of being compelled to chase after them to feed them and gather their eggs.

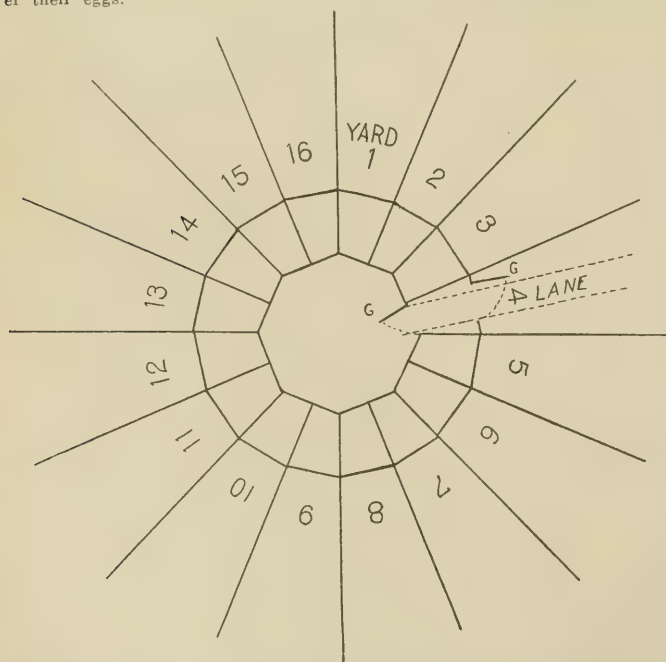


Fig. 1 shows Stoddard's convergent poultry-yards. As will be noticed, it pictures 16 yards converging to the center, where the granary is located. The engraver has outlined 16 poultry-houses adjoining; but in Florida and Texas I do not think these houses will be needed. In fact, H. H. Stoddard, the inventor, of Riviera, Texas, has 600 fowls in yards, as above, roosting in the open air, without any roof over their heads at all. I do not know at present how he protects the food-hopper and the nests.

same Stoddard is now down in Texas superintending an up-to-date (or we may say 1912) egg-farm; and in place of going around to the different poultry-houses with a horse and wagon he makes the laying hens do the running. Before I saw that friend Stoddard had got the idea of it, it had been running through my head, off and on, for years.

SOME PLAN OF TAKING ADVANTAGE OF THE DISPOSITION OF MANY OF OUR BEST EGG-LAYING TRIBES OF FOWLS; THE DISPOSITION TO ROAM AND RAMBLE.

I had planned to have four or perhaps eight yards all running down to a common center, where the nests, watering-troughs, the feed-pans, and the roosts were to be located; but friend Stoddard has "outgeneraled" me by having his arranged like the spokes in a wheel—say of a wagon or buggy. The circle in the center, or where the hub of the wheel comes, is to be large enough to include a granary. The spaces between the spokes of the wheel are the separate yards. I think he has sixteen yards, with the granary in the center. This granary had, perhaps, better be a round building, say something like a silo. A lane gives access to this inside circle, 45 feet in diameter, which he describes in the *American Poultry Advocate*

for May. A team can come in with a load of grain and go right around the round granary, then go out again. This "inner" circle or fence is 45 feet in diameter, and with sixteen yards each yard would occupy a part of this smaller circle, about ten feet across. The division fences ought to run out far enough to give yard room, say for fifty hens in each yard. If the fowls were not too much disposed to get too far away from where the feed, water, and nests are located, he might leave the outside ends entirely open so a team, a harrow, or any other farm implement could be driven from one yard right to another without opening gates so as to grow corn, for instance, in each yard as Mr.

Hunter does, or, if you choose, grow potatoes. Down in Florida the chickens would dig up and eat a good lot of the potatoes nearest their house or home; but I do not know but potatoes or something equivalent would be a cheap way of furnishing them with green food. Have a field big enough so as to give them all they want, and *still* have some left. Very likely it would be wisdom to have a fence or some gates so as to keep them off the crops, if need be, until they are well started.

In Texas, where my friend Stoddard has his up-to-date egg-farm, the weather is so warm (as it is in my Florida home) that he declares no roof is needed over the roosting-places; and after having tried this plan for two winters they do seem to do about as well without any shelter. As they, however, seem to *prefer* to run under shelter when we have heavy rains, I think I would have a roof for each pen that would give comfortable shelter to fifty laying hens in each yard. For nests we will have boxes with a sloping roof, or, rather, a hinged cover for a roof—coming inside of the inclosure around the granary. Friend Stoddard has sixteen yards, as I have told you, all running down to one narrow center. With fifty hens in the yard this would make 800 on the egg-farm. But one yard would be occupied by the lane running down to the granary, or at least the lane would take up a considerable part of it, and another yard would probably be saved for sitting hens, and possibly two or more yards for chickens of different ages.* This would leave

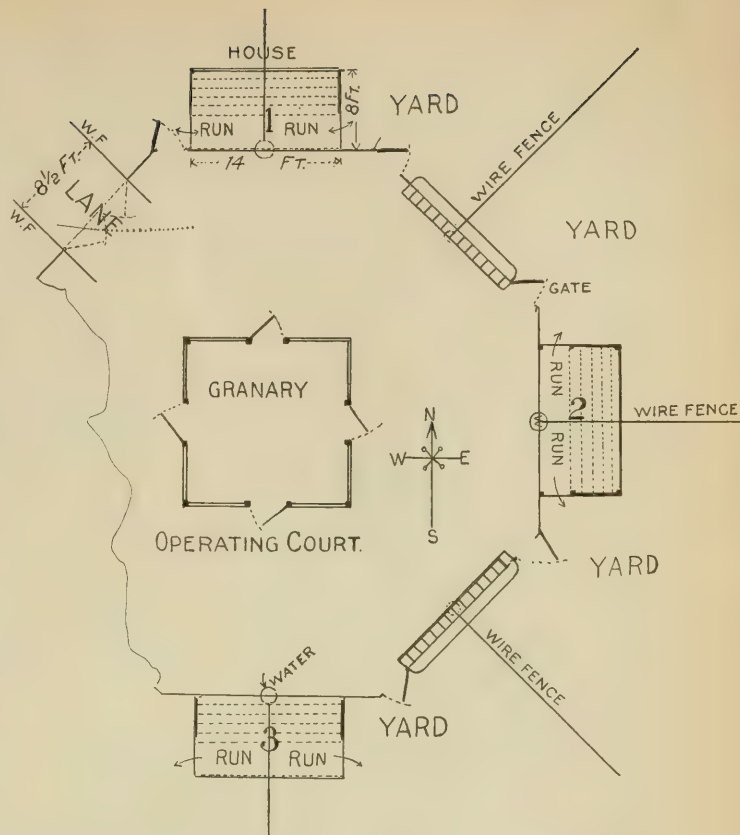


Fig. 2 shows my modification of Stoddard's convergent poultry-yard. You will observe, however, that I have only 8 yards instead of 16, and I have 4 poultry-houses, each 8x16, divided in the center by the wire netting so as to make 8 roosting-places 8 feet square. These roosting-houses have a shingle roof at present, with doors so arranged that all the poultry can be securely locked up nights. The granary is so arranged, as you will notice, that the feed may be carried from the store-bins to the feed-hopper only a few feet away; and that is also arranged so that one roof will answer for the two yards, and the feed-hopper is located right in the division fence so that one hopper feeds two yards; therefore you will observe that 4 hoppers answer for 8 yards. In like manner four series of nests answer for the 8 yards, and also, in like manner, 4 feed-hoppers, and 4 watering-dishes, or troughs. I have not thought it worth while to show the watering-arrangement either in the cuts or diagrams.

twelve yards to contain fifty laying hens each, or 600 laying hens in all. Well, friend Stoddard tells us in the *Journal* that one who has had practice with such an arrangement can feed the 600 fowls in *one minute*, and not have them all crowding and getting their muddy feet in the food, etc., either. The watering arrangement is simply a dish into which water is constantly

* In order to get the proper number of pullets for our "egg-farm," we shall have to raise about an equal number of males; at least there is no way as yet for helping it to any great extent so far as I can learn. Well, we are frequently told that the sexes should be separated about as soon as we can

distinguish the cockerels, and we want a separate yard for these. With my arrangement of fences and yards down in Florida my cockerels were so far away that they sometimes got neglected; and if you want to sell them for broilers or "fries," as they call them in the South, they need to be crowded with the best kind of food and care. Well, just think of the saving of time and labor in having these "young roosters" (like all the rest) come right up to the granary for food, water, grit, shells, meat, or whatever else you choose to give them.

dropping, and they are so arranged that each dish will water two yards. For fifty laying hens there ought to be about half a dozen nests. You will probably never get over forty eggs a day, even when they are doing their best, and this would give seven eggs for each nest. Down in my Florida home I frequently have ten or eleven eggs laid in one good-sized nest—sometimes a dozen. These nests can be made in long boxes of a dozen each, set right across where the partition fence comes—six nests on one side of the partition fence and six on the other.

When it is time to take the eggs to market, a light wagon or auto (as you choose or can afford) simply runs around the granary and picks up the eggs and they are loaded for market in five or ten minutes, or may be less. Grit and oyster-shells, as well as water, are furnished in the same way. Green food, grass, and insects, the fowls get by going out on their free range, giving them a narrow yard, or perhaps a three-cornered yard, an eighth of a mile long if you can afford it.

You may suggest that they will lay in the bushes rather than in the yard. After testing the matter for half a dozen years I find that my strain of Leghorns and Buttercups as a rule *prefer* to lay in a pleasant and convenient nest under shelter rather than to go out into the bushes. The pullets, when they begin to lay, sometimes will steal a nest or drop their eggs on the ground; but they soon get over it, and get over to where the other hens lay. If you decide that you want their roost placed under shelter, a shelter or double roof can be easily fixed across one of the division fences, so as to make your open-front house cover two yards. In this case, if you sweep up the droppings under the roost every morning, as we have been doing every morning for two or three years past, very little time

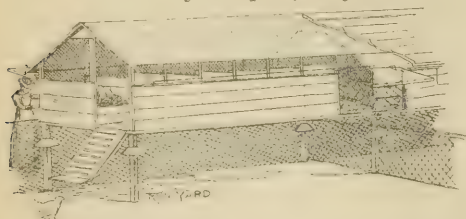


Fig. 3 shows about the plan I have decided on for nesting places. I am sure it is best to give the fowls a secluded nest, free from interruptions, and where they will not be frightened by visitors who go through the yard; and if egg-eating should get started I would have the nests so that they can be made quite dark. The engraver has made a part of the nest-boxes of wire netting. This will be especially desirable in hot climates like Florida and Texas. I prefer to have the nests up, say, 2 to 2½ feet from the ground so as to avoid the necessity of stooping over.

is required. If you do this, I do not think that, as a rule, you will be troubled with vermin of any sort. By the way, I would have this "inner court" around the granary *absolutely* secure from rats, mice, skunks, or other prowling nocturnal visitors. Until this last season I supposed that one-inch poultry-netting would keep out rats. We have no mice in Florida. Either they have



Fig. 4 shows the plan of gathering the eggs. The picture shows a little door for each nest. Now, this on some accounts would be very desirable; but it will be quite a saving in time and labor to have one long door that will cover the whole six nests. When this is raised up the eggs will all be gathered very quickly; and I am not sure but I prefer to have the nests a little lower down so we can raise a part of the roof instead of the doors when gathering the eggs. The picture shows the egg-basket standing on the ground. People of my age, I am sure, will object to this, because it necessitates stooping over.

never got there or they do not like the locality. Well, even if we do *not* have mice I found *young* rats getting through the inch-mesh netting; therefore I would have the first two feet of this inner yard made of ¾-inch netting, or, if necessary, of half-inch-mesh wire cloth, and I would have this go down in the ground far enough so that no animals would dig under it. One of our government bulletins recommends bending the netting and carrying it horizontally six inches. Skunks and other animals that dig under, always dig straight down close to the fence. When they find the wire netting runs out horizontally, say six inches below the surface, they will probably give up the job. Under *no circumstances* must rats and other wild animals be permitted to get into the granary; and in order to have things neat and tidy I would never permit a chicken, little or big, to have access to this inner circle. Be sure that nothing gets in during the night time. You will need to have a gate to shut up the roadway nights, say one running up at least two feet.

NOW A WORD ABOUT SITTING HENS.

I have already mentioned one of Stoddard's articles that I said was worth ten dollars to me. It was because of the idea it contained as follows:

I mentioned having four yards out of the sixteen unoccupied the greater part of the year. Suppose in going around you find a sitting hen. Just pick her up and put her

in one of the unoccupied yards. These yards are furnished with food, drink, grit, shells, etc., like all the others. Each yard is exactly like every other yard. If this hen wants to sit on a particular nest in one yard, just give her a setting of eggs in the same nest in a vacant yard. If she does not stay on the nest when you put her there, never mind. She will soon go right back to it, because it is exactly like the nest which she wanted to sit on in the other yard. In this way you can put any number of sitting hens in one vacant yard. Or if there are half a dozen of them, have a second yard for sitting hens. You will notice that the sitting hens with this equipment would have all the liberty of a stolen nest on the average farm. They are outdoors, under natural conditions; and yet they will get back to their nest every time, because it will be to them practically the very nest where they started to sit.

Now, you need not say this arrangement is only a beautiful theory. Friend Stoddard has got it running, and says it works all right. I hardly need remind you that

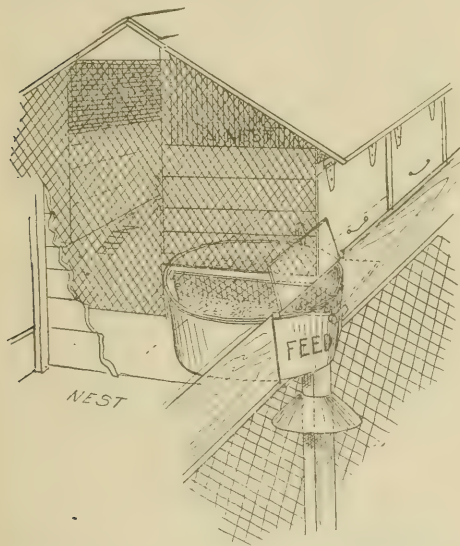


Fig. 5 shows the feed-hopper that I prefer. It is a large-sized galvanized tub. The wire cloth that separates the yards goes clear down to the bottom of the tub. This tub is placed just midway in the nest-boxes—half of the nests on one yard, and half in the other. The tub should be large enough so the hens can get in and get the feed. No fowls are to be permitted under any circumstances to roost in or about the nest-boxes. You will notice by Fig. 2 that their roosting-houses are a separate affair from the nest-boxes. We want to take every possible pains to have our eggs fresh and clean, without the necessity of washing them; and I think I can manage with the above arrangement so no droppings will be found in or about the nest. After several winters' experience, I notice that my hens seldom or never void their droppings while they are in the tub of feed. They seem to have at least a little sense of the "fitness" of things when they have a fair chance.

the greatest obstacle in the way of conducting a successful poultry-farm, or any other kind of farm for that matter, is the expense of competent help. This up-to-date egg-farm I have been describing, when every thing else is fixed just right, should all be easily managed by one person, or, I think, by any average boy or girl who loves chickens. If the wagon draws in the grain and draws away the eggs, and you have a wind-mill or a spring to furnish the running water, there is very little fatiguing work to be done. Of course, the same arrangement will work all right with ducks; and, better still, because the fences to restrain the ducks need be only two feet high; and the Indian Runners would travel half a mile, or more, if need be, to get to running water, and they will come back every night where they are fed to be shut up until they have laid their eggs.

If chickens are wanted after dark, for the market, or for any purpose, their roosting-places are all together. In fact, your 600 hens can all be under *one* roof, if need be. Do you suggest that this would be a bad arrangement if contagious diseases get among the flock? Yes, it might be a little bad; but with very little effort you can arrange to have them roost, and perhaps lay their eggs also, at a little distance from any other flock; but with proper precaution, such as I have outlined, I believe there is little or no need of having either vermin or contagious diseases. A successful egg-farm, if I am correct, does *not* have any thing of the sort.

One more thing. Every little while we hear of a poultry establishment getting afire and burning up a lot of chickens. I visited a place ten days ago where a brooder-house caught fire, resulting in the loss of something like a thousand chickens. Now, if you are either in Texas or Florida, you can have your shelter and every thing else made of galvanized iron so there will be *nothing* to burn, and no harbor for insects. If you are going to use incubators I would have them in a cement cellar under the granary; and I think I would have this granary also made of galvanized iron so there will be nothing to catch afire and burn up. We have cornercubs here in the North—in fact, we have one on our place here in Medina—made entirely of galvanized iron that keeps both seed corn and buckwheat beautifully. It is all made of cement and perforated iron. There is not a thing about it of wood. If you have electric lights in your vicinity I would have the whole establishment lighted by electricity.

Finally, dear friends, I am just now anx-

ious to get back to my Bradentown home in the fall so that I can remodel my five acres down there, in the way I have outlined above, for my Runner ducks and Leghorn-Buttercup laying hens. I have submitted the whole plan to you thus early in the season so that you may be thinking it over. What is the use of wearing out your *shoes*

and yourself likewise, in traveling miles in caring for your chickens, when the laying hens will gladly do the traveling for you? The hens are "young and spry"—especially the ones that lay the eggs. If they are *not* young and spry it is because *you* are at fault. Shall we not let them do the laborious running?

HIGH-PRESSURE GARDENING

ANOTHER GREAT BIG "DISCOVERY:" THE USE OF LIME FOR GETTING A STAND OF SWEET CLOVER.

The convergent poultry-yard, described elsewhere in this issue, I hope is destined to produce a "revolution" in egg-farms—at least friend Stoddard and I think it may. But we are old men, and both of us somewhat given to riding hobbies. But you just wait and see. Well, now, here is another thing that seems likely to "revolutionize" the great science of agriculture. It is not my invention, however, for it comes from our Ohio Experiment Station. Some years ago Dr. C. C. Miller said if anybody could tell him how to get a solid growth of sweet clover in the fields, like that growing by the roadside, he would be glad to know it. That might have been twenty years ago. Well, our Ohio Experiment Station has been working for about twenty years, and has only in this present year of 1912 gotten at the truth. For their experiments, something like twenty years ago they purchased a farm in Northern Ohio—the poorest worn-out farm to be found, perhaps, in all of Ohio. Last Saturday, June 15, they had a field meeting in order to demonstrate what *lime* will do on poor clay soil, and later I paid a visit to the Station ground at Wooster. Not only sweet clover but alsike, alfalfa, timothy, and red clovers were tested in strips, and all these strips ran across a field where one half was heavily limed, and the other half had no lime. A great variety of commercial fertilizers were also tested across the limed and unlimed land. The result was not only wonderful, but really *astounding*. We saw beds of sweet clover, both white and yellow, as high as one's head, the latter in full bloom; but when this strip ran on to the unlimed portion of the field the result was almost nothing but plantains, wild grasses, and weeds. The results were practically the same at the sub-station mentioned, as in Wooster. The heavy applications of fertilizer amounted to little or nothing without the lime. When we came to a strip, however, where 15 loads of barn manure to the acre were applied, there was a par-

tial stand of the clovers and timothy. The barnyard manure was almost the only thing that compensated for the lack of lime. Some of you know the A. I. Root Co. have been selling sweet-clover seed for twenty years or more; and when the seed that grew nicely here around my Medina home did not do any thing to amount to much elsewhere we have a good many times paid the money back or furnished more seed at a reduced price. Now the truth has just come up. Where the seed was sown on limestone soil it produced a crop. Where fields have been farmed until the lime was used up, sweet clover balked. Once more, wherever stone roads have been constructed through Ohio, and almost everywhere else, especially if said roads were made of *crushed limestone*, sweet clover came up rank, thrifty, and luxuriant along both sides of the road. I think you will find it everywhere if you have your eyes open. Well, this crushed limestone mixed with soil by the agency of the iron wagon-tires, produces just the combination that the clover wants. And these same wagon-wheels distribute the seed for miles along the edges of the road. Another thing, soil thrown up by ditches along the railway, or thrown out by the railway companies, contains more or less lime that has not been used up by exhaustive farming, and therefore the sweet clover grows.

A am sorry to note that the sweet-clover bulletin from the Department of Agriculture, that I have recently quoted from at considerable length, contains scarcely any mention of the fact that sweet clover must have lime. It can not endure acid or sour soils. Within 24 hours after I witnessed these wonderful results I had five kinds of sweet clover planted, each kind running across a bed in the greenhouse, half limed and half unlimed.

In regard to the quantity of lime needed, one of the tests at the Wooster station contained six tons of ground limestone to the acre. Another had 15 tons. There was not very much difference in the results. My impression is that a single ton will furnish all that is needed. See Special Notices.

Gleanings in Bee Culture

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Editorial

FOUL-BROOD INSPECTION FOR IOWA.

MR. FRANK C. PELLETT, Atlantic, Ia., is now State Inspector of Apiaries for that State. Mr. Pellett will be glad to receive correspondence from those who can advise him with reference to bee diseases in his State.

CLEANING SECOND-HAND SQUARE CANS.

IN our Heads of Grain department, page 553 of this issue, will be found an item from Major Shallard, of Australia, on how to clean second-hand kerosene-cans so that they may be used for honey. The method described by Mr. Shallard, it would seem, would do the work most thoroughly; and if the cans are not damaged nor rusted they would be practically as good as new.

THE FOUL-BROOD INSPECTOR FOR TENNESSEE.

ANNOUNCEMENT has come to us that Dr. J. S. Ward has been appointed State Inspector of Apiaries in Tennessee, with headquarters at Nashville, to fill the vacancy made by the resignation of J. M. Buchanan, of Franklin. Dr. Ward asks the co-operation of the beekeepers of Tennessee in protecting the honey industry, and especially solicits correspondence as to where disease may be found.

BEEKEEPING IN COLORADO.

The reader's attention is directed to a very interesting article in this issue by Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., on beekeeping in Colorado. Eastern beekeepers will be particularly interested, because the methods they use have to be modified to fit the peculiar conditions that exist in those irrigated and elevated regions. An altitude of a mile, and no rains to speak of, and a sole dependence on melted snow from the mountains to water plant life, make it necessary for the beekeeper as well as the rancher to work on a slightly different plan from that used in other territory.

BUSY DAYS FOR THE EDITORIAL FORCE; CARNIOLANS.

THESE have been busy days for the editorial force. The unexpected rush of honey, and swarming, have made it necessary for us to go out into the field and help out the boys. For example, we have had some experience in shinning up trees forty or fifty feet high after swarms—an experience that will not be repeated next year if we know ourselves. Say! those Carniolans, when they get on the swarming rampage, violate all rules—abscond without queens, come out at any time of day, stay in the air for hours, and swarm when queens are caged in the hive. They are excellent bees to breed up, and for extracted honey, but no good for comb honey. Fortunately for us, we have only one yard of them.

MOVING BEES WITHOUT SCREENING; AUTO- MOBILE WAGONS.

WE would call special attention to the article by Geo. J. Van de Vord in this issue on the subject of moving colonies of bees without screening them in the hives. This saves a lot of preliminary work, and effectually eliminates the danger of smothering bees in transit. If an auto wagon is used, there can be no bad spills from stings as sometimes occurs when horses are used.

Auto wagons are now becoming so cheap that the modern beekeeper of fair mechanical skill with out-apiaries can not afford to be without one. The out-apiary scheme requires quick means of reaching yards with loads of empty and filled supers, and the same wagon can be used for carrying the whole extracting-outfit and a force of men to take care of the honey, extract it, and carry it back home to a place of safe storage, away from robbers of the bee kind and robbers of mankind.

J. E. HAND ON THE SICK LIST.

MR. J. E. HAND, producer of fancy comb honey, and successful user of the shallow divisible-brood-chamber hive, inventor of

the Hand switch-lever bottom board for controlling swarming, author of "Beekeeping by Twentieth-century Methods" (published by the A. I. Root Co., 50 cents), a chicken fancier, as well as a honey-producer, has had a relapse of his old nervous trouble, and it is feared he will never recover sufficiently to be able to take up his business again.

For two or three years back he has been quite extensively engaged in the rearing of queen-bees of a high class; and our readers will remember his discovery of feeding bees a thin sugar syrup, made of nine parts of water and one of sugar, in outdoor feeders in such away as to eliminate all robbing during a dearth of honey, and yet keep queen-rearing going on at full headway. Mr. Hand is an original genius—keen, alert; and his many friends will be sorry to know of the infliction that has been visited on him. He is now in the hospital for treatment where it is hoped that he may be restored to his former health.

Mrs. Hand writes that all money sent for queens that her husband could not send has been returned. There will be no use, of course, in sending in any more orders; and if there is any of his correspondence that has been neglected by Mr. Hand, we feel sure that Mrs. Hand will be able to take the matter up. Address her at Birmingham, Erie Co., Ohio.

HONEY-CROP REPORTS UP TO JULY 9.

WE are having a remarkable flow of clover honey in Northern Ohio; and if the season were as good all over the United States as we are having here, and there were enough bees to gather it, the honey market would be glutted in short order. We have had practically four weeks of clover; and it looks now, July 9, as if we might have two more weeks of it. Bees are booming at all our outyards; and swarming—it took us so completely by surprise that we were unprepared for it. The region around Zanesville, O., is likewise reporting a remarkable yield from clover.

Apparently the yield of clover honey has not been as good elsewhere in the United States; but from reports that are now in, there will be far more clover honey produced this year than for some time past. Clover seems to be yielding best in the central and eastern States—more particularly the central. Indiana and Illinois, however, have so far not made much of a showing. Some parts of Canada will have a large yield, and other parts only a fair one.

There have been several good reports from the East, particularly around New York, Philadelphia, and Washington. Excellent

yields have been reported in Maryland, some parts of West Virginia, Kentucky, and Alabama; Missouri poor and Kansas good. Reports from the New England States are scattering. So far no large yield has been reported. There will be some clover honey in Michigan, Minnesota, and Wisconsin, with a little basswood.

Colorado will have a fair yield, probably.

Reports are unfavorable from California. Some orange has been produced, but there appears to be but very little sage. Winter losses have been reported in some of the other western irrigation States; and while alfalfa will furnish nectar as usual, there will be fewer bees to gather it.

Prospects in Pecos Valley, New Mexico, are poor.

In Texas the season has been poor, and the same is true of Florida. Some of the other southern States report a very good yield.

Taking it all in all, it is our opinion that there will be a better crop of Northern white-clover honey harvested than usual; a fair crop of alfalfa, and a light crop of sage. Prices in the East, on account of clover, may be a little easier than last year; but for the present they should hold about the same, for the reason that no accurate estimate of the crop can be given as yet.

In the meantime, we request our subscribers and others to continue sending in reports of what the season has been. Make the reports short—not more than two or three sentences.

DENATURED ALCOHOL FOR REMOVING PROPOLIS FROM SECTIONS; ELIMINATING GLASS FROM SHIPPING CASES.

S. N. HATHAWAY, page 454 of this issue, recommends removing propolis with denatured alcohol, which is now comparatively cheap. We see no reason why the scheme should not work.

We wish to call particular attention to what our correspondent has to say on the subject of using no glass in shipping cases. While we endorse what he says in a footnote, we feel that the matter is so important that we desire to give it further reinforcement here.

The use of glass very materially weakens a shipping case. The wider the glass, the frailer the case. A weak or wobbly case breaks a good many sections.

The front row of sections as seen through the glass very often, and we may say generally, does not tell the truth as to the kind of combs behind them. It is not necessary any more to have glass in the front of the

case to indicate the fragile character of the goods it covers. The old theory was that it would warn the freight and express handlers to be careful; but experience for many years back shows that such warning seldom is of any avail. In fact, the railroad companies are now discriminating against glass in shipping cases. All comb honey nowadays is or should be shipped in carriers. When so packed, the glass will seldom show, even if used. Reliance must rather be placed on large printed labels on the carriers to indicate the character of the goods; and the safety of the comb honey lies really in the fact that the carrier is too heavy to be dumped or thrown. The straw cushion used in carriers will take care of what little jars the sections may receive.

The only argument that can be advanced for glass in shipping cases is for retail display purposes; but as we have argued time and time again, sections can be shown off to better advantage in a regular showcase than between two bars of wood of a soiled, unpainted wooden container.

We believe the time is not far distant when producers of comb honey, and buyers alike, will demand the elimination of glass entirely, not only as an unnecessary expense but as a positive detriment. If the new grading rules adopted by the Colorado Honey-producers' Association, as given in our last issue, should be generally adopted, and if buyers would refuse to take comb honey, except in carriers, in less than ear lots, and discriminate against cases with glass, the comb-honey business would soon be restored to its former standing. Dealers furnish cases made for glass for no other reason than that old usage sanctions them. It is high time that we pack our comb honey in the strongest cases we can make, weight and price considered. Certainly we ought to make such containers as strong as those for bottled goods that are far less fragile.

MANAGER RAUCHFUSS' STATEMENT CONCERNING THE NEW COLORADO GRADING RULES.

We sent Mr. Frank Rauchfuss, Manager of the Colorado Honey-producers' Association, an advance copy of our editorial on Colorado's new comb-honey grading rules. Mr. R., we understand, had much to do with the framing of the new rules. His comments on our editorial will, therefore, be read with interest.

Mr. Ernest R. Root:—Your letter of the 1st inst. is at hand, also advance copy of the article in GLEANINGS relating to grading. I am well pleased with it, and hope your suggestion of having a meeting of honey-shippers and carload handlers of honey, at Chicago or some other place, some time in the near future, will be carried out.

In your editorial you say, "Another very impor-

tant suggestion is that for scraping the section." It should be incorporated in the rules, for it is very important. In prefacing the whole article you say, "Not only the rules but the general suggestions are worthy of careful reading." We should like to call your attention to the fact that we are not making suggestions as to how honey should be graded and packed, but give instructions, and these must be carried out if the honey is to be accepted. There is one slight omission in the description of the marking of "Choice" honey. It should read, "Choice must be marked — (dash) in hand-holes," and directions for extracted-honey producers should read, "Adopt the plan of marking," instead of *marketing*, "each extracting."

In adopting these rules we have held to the view that comb honey is an article that sells principally by appearance; therefore the question of color and finish has been given most prominence. For instance, in our fancy white you will note that honey, comb, and cappings must be white; in the No. 1 it says, "honey, white or very light amber, but comb and cappings from white to slightly off color." While I realize that this term, "slightly off color," is somewhat vague, I have not been able to run across any one who could offer a better description. You know that here in Colorado, especially on the western slope, we have quite a little honey that is of a pinkish order, of very good flavor and body, and very often has cappings that are nice and white except for a little discoloration at the bottom. We realize that such honey as that should go into No. 1 grade, especially if the qualifications of weight are carefully observed as they should be. Now, in the choice grade we have the following description as to color: "white to amber, but not dark." This is another rather vague way of explaining things, but is the best we could do; and when it comes to explaining these matters, the best way to do is to have grading demonstrations. We have had several of them at our annual meetings, and they have been well received by the members. In the grading instructions you will find one clause where it says, "The front sections of honey in a case must be alike in color and finish, and be a true representation of the contents." Now, this disposes of the whole matter where more than one shade of color are permitted in the same grade; because if this instruction is carried out, honey of one shade and finish will be found only in the same case; and the dealer buying the honey can govern himself accordingly. As you well know, in every city there are people who prefer dark-capped honey before the white-capped, although they are in the minority; and by this kind of grading they can easily be accommodated. You will note that no provision has been made for honey where more than fifty cells are uncapped. This has met with some criticism by our people on the western slope. They contend that sections weighing probably 14 ounces, but capped over three-fourths on one side and one-fourth on the other, are good salable sections. However, my experience in the comb-honey business has been otherwise. While there are isolated cases where such honey is wanted, they are not sufficiently numerous to give them any consideration in grading rules. Such honey can usually be disposed of to fair advantage in the home market; or if this is not the case they could be extracted.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
FRANK RAUCHFUSS, Manager.
Denver, Colo., July 3.

We are glad to know that the matter is not so much optional as mandatory. Good!

GLEANINGS will be glad to assist in any movement looking toward a more general adoption of these excellent grading rules. We have already written to Secretary Tyrrell, of the National Beekeepers' Association, asking him if it would be possible for him to arrange for a meeting of producers and buyers at some central point, say Chicago, with the view of adopting the Colorado rules as they stand, or making such modifications as might seem wise on the part of all those concerned.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

IT IS FOUND that invertin, which causes the inversion of sugar, is present not only in the saliva of bees, but also in pollen.—*Schweiz. Bztg.*, 512.

WESLEY FOSTER, you ask, p. 330, what a beekeeper would gain over express charges by a parcels post limited to 11 pounds at 12 cents a pound. On a 1-lb. package he would gain 13 to 18 cents, according to distance; on a 2-lb. package he would gain 6 to 11 cents.

C. CALVERT, you seem to think, p. 349, that our eight-frame hives are too small, and that a hive with ten Standard frames is the most useful type. But the frames in our eight-frame hives are $17\frac{5}{8} \times 9\frac{1}{8}$, and your Standard frames are $14 \times 8\frac{1}{2}$; so our eight-frame hives really contain $96\frac{5}{8}$ square inches more frame surface than your ten-frame hives!

YOU ASK, Mr. Editor, what's the matter with manilla hive-tags? Curl up. Glad to have you say they work well at Medina. Perhaps I didn't fasten them on right. Have just ordered another set to try again. How do you fasten them on the hive? [Your unsatisfactory experience with the first set of manilla tags was doubtless due to the fact that we first soaked the tags in linseed oil after they were printed. Like yourself, we found them unsatisfactory. Finally an enterprising Yankee suggested that we soak them in boiling-hot paraffine. Tags so treated stand the weather very much better. But even these will discolor in time; but we have some that have been in use for five years, and we venture to say they will show the numbers fully as well as any metal tags with the figures painted in black. They are so cheap that they can be replaced for less money than it will take to fix up metal tags.—Ed.]

THIS YEAR has been very unusual. Last winter was the killingest winter I ever knew. A good many trees and bushes were killed root and branch (nearly all my roses gone), and much of the grass and clover killed. Loss in some apiaries 75 per cent; in others, 100 per cent. Fed up to June 22. Then a lightning change; clover-bloom seemed to jump out of the ground (increasing ever since), and supers were put on June 24. Within 24 hours honey was in many supers. The flow began too late for a crop, but—I don't know. [We have had four weeks of honey flow, and white clover

seems to be at its height. To-day, July 5, the basswoods are just opening up. If every locality had a flow like the one we are having here, it would be the greatest honey year on record. We never had so much swarming in all our experience, nor so much honey from colonies so weak that they would be supposed to be doing well if they even filled their combs. As it is, they are filling the combs twice over, and the queens would be honey-bound unless we extracted.—Ed.]

● DESIRING data as to distance required for the isolation of a mating station, Frank-Kleist marked 70 or 80 field bees with red or yellow color early in the season when forage was scarce. In the next fortnight he made frequent visits to a field of *Erica carnea* $2\frac{1}{2}$ miles away, and always found his marked bees there. He repeated the experiment when pasturage became plentiful, and never found them further than a mile away. A third experiment, after pasturage was scarce, showed his marked bees again $2\frac{1}{2}$ miles away. But at this same time a spot of good pasturage at a much shorter distance was left unvisited by the bees, because to reach it they must pass over a wooded hill.—*Leipzig. Bztg.*, 66. This looks as if bees do not from preference forage more than a mile from home. [This conforms exactly to our own experience. We have demonstrated over and over again at our outyards that when bees can get plenty of nectar within a mile or a mile and a half, they will not go further; and why should they? Usually a clover flow will give bees all they can do within a radius of a mile and a half; and basswoods will take care of twice the number of colonies within the same radius. Or, to put it another way, the same number of bees would not require more than half the radius needed by clover. But when forage close at hand is scarce, bees will go two and a half and even three miles, providing the flight is over a level plain without obstruction. A piece of wooded land will often prevent bees from going even a quarter of mile to a fine field of alsike—that is, assuming that the woods are between the bees and the field. When we furnish alsike at half price to beekeepers within a mile of our apiaries we make sure that the field to be sown is not the other side of a piece of woods nor high hills. Taking it all in all, our experience exactly coincides with that of Mr. Frank-Kleist.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. Holtermann's suggestions on page 228, April 15, as to using wires in brood foundation is to the point when he says the wire should be placed where there is the most sag in the combs at the top. It is rare indeed that we find cells out of shape for more than two inches below the top-bar, whether there are wires below this point or not.

* * *

Some very wise person has remarked that you can't tell by the looks of a toad how far it will jump, and it is true. The same might be said of many inventions relating to bee-keeping. You can't tell by the looks of them how far they will jump nor whether they will prove to be of permanent value. There is Hand's bottom-board that I saw in actual use at Prof. E. L. Baldwin's, at Deland, Fla. Prof. Baldwin was much pleased with it, and it seemed as though it might prove to be a success. Certainly the bees of that hive were working with an energy unsurpassed by any other colony in the yard.

* * *

Railroads get their share of abuse for their heavy freight rates and methods of business; but have we stopped to realize their immense value in transporting products that otherwise would be of little value, and conferring a benefit on both the producer and consumer? I am reminded of this as I see the enormous amounts of fruits and vegetables shipped from the South during the winter months to the cold North that otherwise would have to go without them. Picking up a can of cream with which to flavor my coffee at the dinner-table to-day in southern Florida, I noticed it was put up in the opposite corner of the country, Seattle, in the State of Washington, four thousand miles away; and yet it was as sweet and delicate in flavor as if it had come from a creamery this very morning. Great as are the problems and abuses of transportation, the blessings are even greater.

* * *

On page 190, April 1, Wesley Foster makes out a strong case against our postal laws and a pretty bad one against our express companies. I believe, however, some allowance should be made for the size of the United States when we consider the immense distances packages have to be carried in this country as compared with

the distance covered by most of the nations of Europe. For instance, the area of the United States, not including outlying portions, is not far from nineteen times that of Germany or France, while the rate on parcels is only twelve times as great. Switzerland, with its one cent a pound, is only about one third the size of the State of New York. So far as the express companies are concerned it looks as though they were willing to take all they can get; and their avaricious nature should be curbed by some vigorous legislation that would compel them to do to others as they would like to be treated themselves—38-per-cent dividends!

* * *

PUTTING THE BEES THAT SWARM BACK WITH THE PARENT COLONY.

Mr. Doolittle, p. 227, Apr. 15, tells how to increase and secure a crop of honey, and, incidentally, how *not* to increase too much when relying on natural swarming. In caring for a yard of bees for Mr. O. O. Poppleton during a large part of last March, not wanting much increase, I hived the new swarm in a hive, and left it for a few days until it had gotten over its swarming fever, and then dumped the bees back into their own hives, or some other that had recently swarmed. This seemed to work very satisfactorily. Scarcely a colony so treated swarmed again.

* * *

THE EFFECT OF TOO MUCH COLD WIND.

Page 191, April 1, J. L. Byer gives some interesting notes on the wintering of bees and the effect of shade and wind. In looking over a yard recently for foul brood the proprietor said his bees had wintered very badly. Coming to one side of his yard, "These," said he, "are almost all dead," and I found them so, as not one in five was alive. In another part of the yard he said, "Now, these are pretty fair," and, sure enough, they were almost all alive. What made the difference when the season last year was the same for all? Just this: Those that were pretty fair were to the south and leeward side of his honey-house, while those that were nearly all dead were at one side where the wind swept around the house and blew even harder than in the open fields; for if we block a current of air or water it will move faster around the obstruction than where there is none. I like a little circulation of air, for it keeps the temperature more even—but not too much.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THE HONEY-CROP REPORTS.

The old saying, "There's many a slip 'twixt cup and lip," has once more shown itself only too true when applied to this year's honey season in the Lone Star State. A little over two months ago I reported most favorably on prospects for a bountiful honey harvest. Since then the tide has changed, and the change is so pronounced that it means that Texas will have the shortest crop that we have ever experienced. Nine weeks ago there was every indication of a bountiful honey crop. Vegetation and all kinds of nectar-yielding blossoms were most plentiful. The bees were in excellent condition, and beekeepers everywhere were jubilant over the fine prospects. As it is now, southwest Texas, where the bulk of the honey of this State is produced, has not had a crop. The main flows in the spring, guajilla and catsclaw, and also the mesquite, did not come out as usual; and the horsemint, while abundant in most localities, did not yield nectar. This is attributed largely to the unusual season—the long-drawn-out winter, followed by a late spring, and too cool nights that prevailed long after spring finally opened. Although there was a profusion of bloom, nectar was very scarce, even when the bees were not hindered by unfavorable weather from going to the fields.

In a nutshell, the weather conditions were not favorable to the proper development of the blossoming of the honey-yielding plants, and the atmospheric conditions were not conducive to the secretion of nectar in those blossoms that did exist. There is still some hope of the mesquite yielding a summer flow, especially in those regions where recent rains have been plentiful. Whether this will materialize is hard to tell as yet. The State, outside of southwest Texas, is entirely different. Here the honey crops come somewhat later, as a rule. Sometimes early crops in April are obtained also, where mesquite prevails.

In eastern Texas basswood abounds in several localities, and this year it yielded an abundance of honey in May.

All beekeepers who are located in the cotton belt of central Texas and further north are figuring on a good yield from cotton. Recent heavy rains have made these prospects most excellent. The bees have just begun on the cotton; and as it is coming into bloom rapidly, a harvest from this source ought to be assured. The cotton honey-flows are long and slow, and usually

last until frost if weather conditions are favorable. With too dry weather in the fall the cotton plants usually cease to blossom, and also shed their foliage, so there is no nectar to be had, and the flow is cut short.

* * *

BULK-COMB-HONEY PRODUCTION.

On several occasions I have avoided writing on the above subject mainly because I do not like to harp on one theme continually. The inquiries have become so frequent that it seems as though the subject might be of general as well as individual interest. What is said about bulk-comb-honey production in this department is partly in reply to letters which can not be answered promptly at this season of the year, and partly because there is a somewhat extended desire for information on bulk-comb-honey production, as indicated by the numerous letters from so many different States. That bulk comb honey has found favor among beekeepers in other States than in the South is indicated by numerous communications to this effect. It is indeed gratifying to note this, since I have always believed and have contended that its more extended production would mean a better distribution and a better price for honey.

There is as yet a very wide opinion as to the best way of producing this honey, and a still greater difference as to the way of marketing it and putting it up to the best advantage, and most economically for the trade. It seems as though every producer has a different way of marketing this product. The sooner a uniform method of packing and marketing can be established, the better. Since the pure-food laws came into effect, the question of the proper weight of the various Texas standard packages has arisen, and a movement to regulate this is on foot now. As soon as this is settled, it will mean that all bulk comb honey in Texas will be put up one way, and will be known to producer and buyer alike.

The question that arises is whether the standard packages used in Texas would be the suitable ones for other parts of the country. I see no reason why they should not be, especially since they are already of standard manufacture. It is only necessary to try these out to ascertain their adaptability; and for the information of those who desire it, a full description of the various kinds and sizes we use will be given in a subsequent issue of this journal.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

I wonder what California would do with her honey if all conditions should be just right once. The crop would be enormous.

* * *

From letters received I am led to the conclusion that San Bernardino County is not the only place where the foul-brood inspector is not giving satisfaction.

* * *

My youngest son has discovered that bare legs in the apiary are preferable to legs covered with black stockings so far as the number of stings received is concerned.

* * *

"It is an ill wind that blows no good." For weeks we fretted and fumed because of the dark cool weather holding the bees back; but many failed to realize that other things were being held back at the same time. At this date, June 1, there is still some orange bloom, this being the latest date my knowledge records for this bloom.

* * *

The well-known phrase, "Keep more bees," is all right in a way, but it is necessary to have the way as well as the means. No one would like to increase his holdings more than the writer, and I am trying to accomplish it as fast as possible; but so long as family expenses are more certain than honey crops, and with six children to feed, clothe, and educate, I must go carefully and look first to the welfare of a growing family, branching out as the way opens.

* * *

There is a fast-growing sentiment against grading honey water-white. There is a very small amount produced that is actually water-white, and what there is should command a fancy price over the next-best grade. Buyers are largely responsible for the dissatisfaction in this grade. Contracts are taken early in the season for water-white. If the season is poor and the supply limited, any fair grade is usually taken under the contract; but if the season is good and the supply large, much quibbling is done over color, and only the very best lots are accepted without question.

* * *

Mr. E. D. Bullock, of this city, has secured 8 tons of orange honey from 240 colonies moved in from the sage-fields. This is the largest amount per colony secured by any one, so far as I have learned. In a recent conversation with Mr. Bullock he told me of having fixed a watering-place

for his bees, which was used freely until the orange bloomed, after which it was deserted—the conclusion being that they secured an ample supply of water from the thin nectar of the orange.

* * *

Some orange honey has been secured. The weather has been very favorable since May 12, sage yielding well, but the bloom being very limited, and no prospect for a large amount being stored. The sage weevil has been the worst for years, many buttons being entirely destroyed before blooming. A slow flow for some weeks is probable from alfalfa (wild) and white sage; the button variety will soon be finished. Late buckwheat should yield well this season. Many who are located out of reach of early pollen and nectar yielding plants, owing to the extremely dry winter, will secure only a very limited crop.

* * *

HOW TO REACH THOSE WHO DON'T TAKE BEE JOURNALS.

I have been criticised for saying so much about foul-brood conditions in our State. I believe I have written nothing but the truth regarding this matter. The chief objection seemed to be that, in giving these facts to be published, I have been scattering it all over the world, when it concerns only us in California. If I am reaching the beekeepers of the world by trying to wake up our California readers to the extent of their danger, all well and good; but how to wake up a few thousand that take no bee paper is a puzzle to me. Considering the number engaged to a greater or less extent in the industry I believe California can show up a greater per cent of ignorance than any other State in the Union. This is not saying, however, that we do not have some of the foremost producers in the world.

There is a general sentiment in favor of a new and better foul-brood law, but some jealousy exists between different factions and individuals. This should not be carried to a point that will jeopardize the enactment of a new law. Every association, club, and individual should help secure this much-needed legislation. This campaign will be my last effort to help secure a new law. It is not a selfish effort on my part, for, from a selfish standpoint, I would rather let the disease spread and clean about two-thirds of the bees from the ranges. I can take care of myself.

Conversations with Doolittle

At Borodino, New York

MANAGEMENT OF SUPERS.

"Some of my colonies are working nicely in the supers of sections; others are not at work at all. How can I manage the colonies in general so as to secure the best results?"

"The first thing is to be certain that the colonies are all strong enough for work in the sections. Many put on supers promiscuously, without regard to strength of colony, and then wonder why all do not go to work in the sections. It is of little use to put supers on any of the hives until the brood-chamber is well filled with brood and bees, as a good yield can come only from colonies *strong* in bees.

"But sometimes it pays to start colonies at work above a brood-chamber which is being filled with bees from the brood after the combs are about three-fourths filled. This is done by putting a queen-excluder over the brood-chamber, and putting a super of half-depth extracting-combs on top. This half-depth super full of combs gives the bees a chance to store any small amount of nectar that may be coming in, or to remove any honey from the combs below that may be in the way of the laying queen. At the same time, the bees become accustomed to working above their brood. Now, when the flow of surplus nectar comes, if this extracting-super is removed and a super of sections having one or more baits is put on, the bees, being used to going above, will occupy the sections at once, and work will progress in the right direction.

"If the colony is very strong, this first super can be raised after three days, and a super of sections filled with foundation placed under the first one. The bees will then begin to draw out the foundation, thus relieving any congestion of bees in the hive. This is a great help toward overcoming any disposition to swarm, as well as toward the filling of a larger number of sections. Now, if it should happen that some colony is not at work in the sections, the upper super of some strong colony, in which good work is being done in both supers, can be removed in the middle of the day and carried to the colony in question, putting this super next to the brood-chamber, and the super in which no work is being done, on top. In the middle of the day, nearly all the bees in any super are young bees, therefore are received with their stores at once as part of the family, so that the work goes on without interrup-

tion. The colony from which this super was taken will probably need another.

"If the season for surplus is not far advanced, another super can be put under that already on; but if there is any doubt as to where to place it, I consider it better to put it on top. Putting a super underneath sometimes results in many sections in which the work has not been completed, if any thing happens to cut the season short. In case of a 'downpour' of nectar or a long-drawn-out season, putting the extra super on top gives ample room for expansion, and most of the sections worked in will be completed.

"After having been caught two or three times by a shortened season, with thousands of unfinished sections and only hundreds in marketable shape, because of putting the empty supers under, I have adopted the plan of putting the empty super on top at all times except during the fore part of any bloom which is likely to give a surplus in the sections. By this shifting of supers, bees and all, from hive to hive as needed, all colonies are in a measure equalized, as the young bees when taken with the supers usually stay where they are carried. I do not think it a good plan to put an empty super (that is, one having the sections filled with foundation) under a super in which the bees are at work until the one already on is at least half or two-thirds filled, for the bees to quite an extent will begin to draw out the foundation, storing honey therein, so as not to have a vacant space between the 'treasure house' above and the brood below. It generally results in unsealed, thin, lean, or 'washboardy' sections, which are not wanted.

"As the season draws toward a close, the work should be in an opposite direction from that at the start, as it is well to have all half-filled sections finished as rapidly as possible. Where colonies are slowing up in their supers, such supers should be taken, bees and all, and set on the super of hives from which a super of finished sections has just been taken. This, you will note, is the reverse of the plan used at the beginning of the season, for we now give to the strongest and take from those slowing down. The bees from this shifted super, now set on top, are doing more than they would where they came from by reinforcing those that were doing good work before, while the colony from which they were taken is not impoverished thereby."

General Correspondence

THE PURPLE AND BLUE FLOWERS OF NORTH AMERICA

Do Bees Show Preference for any Color? Are they Color Blind?

BY JOHN H. LOVELL.

There are 422 purple flowers in our eastern flora. Purple is an artificial rather than a natural category, and the term is used rather as a matter of convenience. It is widely used by systematic botanists, and, though open to many objections, there seems to be no convenient substitute available. If an accurate scale of colors should ever be adopted it will very likely be discarded altogether. All colors with their various tints and shades, including the browns and grays, are represented in the solar spectrum except purple. This sensation is produced by the combination of two sets of light-waves—red and blue, or violet. Often purple flowers contain two or even three pigments. It has been suggested that, instead of attempting to name their hues, the percentages of the different colors composing them should be given. By using Maxwell's color-wheel the purple of the dahlia may be produced by mixing 14 per cent red, 7 per cent blue, and 79 per cent black. Heliotrope purple is produced by mixing 25 per cent each of red, blue, black, and white. While such formulæ have the value of accuracy, it may well be doubted whether they would convey to the average person much idea of the color of the flower.

Purple flowers may be divided into three groups—dull or lurid purple, red purple, and blue purple. Red purple should usually be classed with red flowers, which as a rule they resemble in structure and manner of pollination, as in the orchis, geranium, loosestrife, and evening-primrose families. On the other hand, blue-purple flowers belong with blue flowers, as in the pea, figwort, and mint families.

Dull or lurid purple flowers are often adapted to flies. The purple trillium, which children so often gather in early spring, only to throw away soon because of its disagreeable odor, contains no nectar, and is attractive to flies alone. In the lurid-purple flowers of the Dutchman's pipe, the calyx is prolonged into a tube, with a contracted throat, either straight or shaped like the letter S, which is set inside with reflexed hairs. Flies can creep in easily, but the hairs prevent their escape. As soon as the anthers have ripened, the hairs wither, and the imprisoned insects, now more or

less covered with pollen, are set free. These flowers should be compared with the pitcher-like leaves of the pitcher-plant and the spathes of Jack-in-the-pulpit, as all three serve as traps for small flies, and are lurid purple, a color which is thought by some to be attractive to these insects.

Brown flowers usually owe their hues to a mixture of chlorophyll or carotin with anthocyan. There are two kinds of pigments in the flowers of the Carolina allspice and the North American papaw, in gooseberries, and various species of orchids. In the European flora, bartsia has black flowers; but I know of no wild flowers in the Eastern States which are black, though a number have black centers; but under cultivation we have black pansies and tulips.

THE BLUE FLOWERS OF NORTH AMERICA.

The blue flowers in northeastern America number 325. Blue is the highest color in the floral world, and undoubtedly blue flowers were the last to be evolved. Blue is Nature's favorite color, the hue which she has reserved to adorn her culminations in flower-building. Simple, small, regular flowers, as has already been shown are usually white or yellow, as the water-plains, buttercups, and five-fingers; but genera and families with highly modified odd-shaped corollas are most frequently blue-purple or blue, and often they are variegated with other hues. For instance, in the buttercup family, while the buttercups are yellow the bilateral larkspurs and aconites have blue sepals and petals. Again, in the rose family the regular rotate five-fingers are yellow and the roses are white or red, but there are no blue blossoms; but in "the sister family" of the *Papilionaceae* or pea family, where the corolla is butterfly-shaped, blue and blue-purple forms are common.

Many violets are also blue, but some species occasionally revert to yellow. In some flowers of *viola tricolor* the petals are yellow when they open, and gradually change to blue, while others change to blue before they open. There are varieties of the pansy with both yellow and blue flowers, and a number of the simpler species of this genus always have yellow flowers. Thus there is good reason for believing that the primitive or ancestral forms of the violet family were yellow. All the twelve species of the spiderwort family, except one which is rose-colored, have blue flowers. They are attractive to bees, as are also many blue flowers in the lily and iris families.

Among the apetalous families, which number 384 species, there are no blue flowers. The flowers are mostly small, and have probably degenerated. In the heath, huckleberry, and primrose families; in the mustard, saxifrage, rose, mallow, St. John's-wort, evening primrose, cornel, and (with three exceptions) the carrot, and many other families, there are no blue flowers.

It is in the gentian, borage, verbena, mint, nightshade, figwort, and bell-flower families that blue flowers reach their maximum. All of these families are of comparatively recent origin, and they contain nearly 400 blue-purple and blue flowers. In the mint and figwort families, flowers of these colors are very numerous, and are often dotted, striped, or maculated with white, yellow, and red. We have here the culmination of color display among flowering plants.

These flowers possess very singular forms, as in the skullcap, monkey-flower, and snapdragon; and the nectar is so deeply and carefully concealed that few insects besides the long-tongued bees can obtain it. In some instances a single species of flower is visited by a single kind of bee, as one of the larkspurs by one of the bumblebees. In general, all blue flowers are bee flowers. But not all bee flowers have bizarre or grotesque forms. The gentian family contains 16 regular flowers, which are blue and likewise adapted to bees. In the Alps the gentians are very abundant, and display vivid masses of blue coloring. Huxley, while seeking health in the bracing air of these mountains, found great pleasure in studying these flowers, to an account of which his last paper was devoted. The intensity of their blue has been well described by Bryant in his lines to a fringed gentian:

Blue, blue, as if the sky let fall
A flower from its cerulean wall.

A generation ago Sir John Lubbock (Lord Avebury) published an account of some experiments he had made, and asserted that they proved that honeybees prefer blue to any other color. This statement was universally accepted and everywhere published. Hermann Muller also made many similar experiments, and came to the conclusion that honeybees prefer blue to red, and red to yellow or white. According to these observers, blue flowers have been developed in response to this preference of bees; but why they prefer this hue they have never attempted to explain. Their selective influence had developed blue-colored blossoms, it was believed, in a great variety of families. On the other hand, a blue flower, other things being equal, is more

likely to attract bees than any other hue. But later naturalists are inclined to be more skeptical. Cowan, in his well-known book on the honeybee, says that Lubbock's experiments are not at all conclusive; and after carefully reading the original descriptions I quite agree with him. Plateau declares that Muller was misled by a too vivid imagination; and that not only do honeybees exhibit no preference for blue, but they can not even distinguish between colors. In this latter assertion Plateau was mistaken, as I am showing in a series of articles in the *American Naturalist*. Bees easily distinguish between different hues; but whether they are more strongly influenced by blue than any other color I do not as yet know. I certainly do not think that it affords them an esthetic pleasure.

If, then, blue coloring has not been developed in response to the esthetic sense of bees, can we account for its appearance in any other way? Let us make the attempt. Simple, wheel-shaped flowers, which have the nectar fully exposed, are usually white or yellow, and are visited by a great variety of insects. The buttercups, water-plains, five-fingers, and many genera in the mustard, saxifrage, and carrot family are familiar examples. Insects often visit indiscriminately these species, which still retain the power of self-fertilization.

On the other hand, genera adapted to bees usually display a variety of colors, as violet, blue, brown, red, yellow, and white, especially when they bloom in the same locality and at the same time. Common examples are the aconites, sages, and clovers. The nectar is more or less deeply concealed, and the floral mechanisms are often intricate.

Honeybees in collecting nectar are faithful, as a rule, to a single species of flower—they exhibit "flower fidelity." Even when the flowers are nearly alike in form and color, the bee often shows a remarkable power of discrimination. If all the flowers blooming at the same time in a locality were of the same color, it is evident that bees could not distinguish between them as readily as when there is a variety of colors contrasting with each other. Numerous color difference in bee-flowers are, therefore, an advantage both to the bees and the flowers; and this is the reason that they have been evolved. There can be no doubt that bees can distinguish between different hues, and can make their visits more quickly and easily because of the contrasts of flowers in coloration. In the development of bee-flowers from primitive genera, red and blue hues have appeared, not because

they gave the bees an esthetic pleasure, but because of their utility.

Both red and blue flowers owe their coloring to a pigment called anthocyan, dissolved in the cell-sap, which in the red flowers is acid, and alkaline in the blue flowers. Anthocyan is probably a compound of a tannic acid and a sugar, for it occurs only in plants containing tannic acid, and it rapidly increases when such plants are fed with an invert sugar. Its formation is also stimulated by strong sunlight. Very likely, instead of one pigment there are several closely related soluble pigments.

If the cell-sap is very strongly acid, a red flower will be likely always to retain its hue; but if it is nearly neutral it may change to blue, either in the bud or after expanding. Finally, if the cell-sap is alkaline the blue hue will appear in the bud. In both fruits and flowers, as they mature, the acidity tends to decrease. This is very noticeable in many fruits, where, from being hard and sour, they become sweet and mellow. In the blueberry and many other berries the color becomes blue.

A majority of bee-flowers, as a matter of fact, are red or blue. Of 100 species of bee-flowers growing in the Alps, 34 are white or yellow, and 66 red or blue. In the German and Swiss flora, 152 bee-flowers are white or yellow, and 330 red, violet, or blue.

Blue flowers often change to white, sometimes to yellow, and occasionally to pink or red. In the *American Garden* for January, 1890, a variety of perennial phlox is described, the flowers of which in the morning were clear blue, remaining this color until nearly noon, when they gradually changed to a delicate pink, and by evening were a beautiful deep rose.

Many purple and blue flowers are valuable as honey-plants, as asters, thistles, borage, blue lupine, blueweed, catnip, and to a variable extent many other species belonging to the pea, mint, and figwort families. Blue flowers, however, appear as a whole to be of much less value as sources of nectar than yellow or white ones. The blue lupine, for instance, in Texas in some seasons completely carpets the ground for miles; but according to Scholl it does not yield nectar very abundantly, and in some years fails entirely.

As the result of our examination we conclude that the secretion of nectar does not depend either upon the color or form of the flower. The catkins of the poplar are pollinated by the wind, and do not contain nectar; but there are nectaries at the base

of the leaf-stalks. Both the flowers and the leaf-bracts of the cotton secrete nectar. Mr. Yancey says in GLEANINGS, "When atmospheric conditions are just right, such large drops of nectar will collect on these leaf-glands that one may readily taste it; and a bee has to visit only a very few to obtain a load. At such times they neglect the blossoms entirely, and the honey comes in with a considerable rush." Many other plants also have extra-floral glands. They occur on the stipules of the common field bean, and likewise on the leaf-stems of some kinds of plums. Nectar-glands are also found on the stalks of some species of ferns so that primarily this function seems to exist quite independently of insects, though of course it has been developed in flowers to attract their visits.

Finally, in the lists of honey-plants the elm and hazelnut are occasionally included. Both are wind-pollinated, and contain no nectar. Neither is the cardinal flower of value to the beekeeper. It is adapted to hummingbirds, and the nectar is beyond the reach of bees.

Lists of honey-plants should distinguish between flowers pollinated by insects and those pollinated by the wind. The latter, according to my experience, do not contain nectar, though there are sometimes extra-floral nectaries. The plantains and a few other species, however, are in an intermediate stage, and are pollinated both by the wind and by insects, and are nectariferous. It would also be of interest to state the color of the flower, the kind of odor, if any, it possesses, also its form, and whether conspicuous or not; whether the nectar is deeply concealed or fully exposed, and whether there are numerous other visitors.

Waldoboro, Me.



THAT IMPERIAL COUNTY ORDINANCE

Bluff Legislation

BY J. EDGAR ROSS.

On page 90, Feb. 1, there appeared a short letter from A. F. Wagner, our county bee inspector, stating that an ordinance had been passed by the board of supervisors that would prevent the shipment of bees into this county after Feb. 1. The letter escaped my notice at the time, though I afterward read the comments made upon it by other writers, and thought there must be a misunderstanding somewhere, as I was quite sure that no such ordinance had ever been passed.

An ordinance *was* passed by the board of supervisors, they no doubt believing that it was for the "protection of the bee industry of this county;" but as it turned out, it looks like a piece of jobbery, and no real attempt has been made to enforce the ordinance beyond trying to bluff any newcomers who were not in the clik. In a measure this bluff has been successful.

The history and a summary of the ordinance in question might be interesting to the readers of GLEANINGS. A copy of the ordinance in force in Orange County was brought before the Imperial Valley Beekeepers' Association by Mr. Wagner, who sought the association's endorsement upon a similar one for Imperial County. It was not enthusiastically received, but Mr. Wagner was appointed a committee of one to secure signers to a petition asking the board of supervisors to pass the ordinance. This did not meet his approval, and he called a meeting of the Valley beekeepers to consider the matter. Of about fifty beekeepers in this valley, just nine responded. I was the only one of the nine who opposed the ordinance, and my opposition was based upon my belief that it could not be enforced. I had no thought at the time that it was to be used as it has been since its passage.

The ordinance, in brief, provided that any bees brought into the county must be marked with the place whence they came, and that the inspector must be notified within 48 hours of their arrival. There were other minor provisions that really added nothing to our State law, and were practically worthless as a safeguard against the introduction of brood diseases.

But here was the joker. It gave the inspector power "to quarantine bees from any county, State, or foreign country, where brood diseases were known or suspected to exist." That practically meant everywhere. But the law gave the inspector no power to enforce his quarantine, nor did it attach any penalty for violating it. I asked Mr. Wagner how he expected to enforce his quarantine, but received no satisfactory answer. I signed the petition, however, as I believed he would make the attempt, and it would give the courts an opportunity to decide whether or not the law would hold.

Since the passage of the ordinance, bees have been brought in by the carload from infected counties by the most enthusiastic supporters of the ordinance, and without any opposition on Mr. Wagner's part.

Mr. Roy Bateman, a farmer located near this place, decided to embark in the bee

business, and went to Mr. Wagner to make arrangements about bringing in a carload of bees. As Mr. Bateman was an "outsider," he was forbidden; but upon his insistence that the ordinance was unconstitutional, Mr. Wagner told him to consult with a certain beeman in this vicinity, saying that if this man made no objections it might be arranged. Though I have as many or more colonies of bees than the man in question, I was not consulted, possibly because Mr. Wagner felt sure that I would tell Mr. Bateman the truth of the situation, and welcome him to the ranks of beekeepers, while he could depend upon the other party working the bluff for all it was worth. Mr. Bateman, however, refused to be bluffed; brought in his carload of bees, and when they were inspected by Mr. Wagner the latter made the remark that that ordinance would frighten away some people anyhow. Shortly afterward I took Mr. W. to task at a meeting of the beekeepers' association for non-enforcement of the ordinance, and he said he was doing all he could, and that it had kept out at least 2000 colonies of bees. That is the key to the entire situation. *It was meant and is being used to keep out bees, not bee diseases*, and it succeeds in this only when the incoming beeman can be bluffed, for Mr. Bateman is not the only "outsider" who has brought in bees.

I do not mean to encourage the importation of bees into this county. There may be, as most of the older beekeepers claim, quite enough here already. I have 600 colonies in a territory less than one mile wide and six miles long, and there are four other small apiaries in this territory, besides many scattered bunches of from three to a dozen colonies, and bees could probably be bought in the county cheaper than they could be shipped in.

But I strongly disapprove of "bluff" legislation of any kind. This quarantine regulation and inspection of bees in general is a good thing; but it has often been abused, to the detriment of the public at large and to the beekeeping industry. The idea of quarantining healthy bees because they came "from a county, State, or foreign country where brood diseases are known, or suspected, to exist," is preposterous. We have foul brood right here in Imperial County, so we can not keep out that disease by keeping out all bees.

Let us have no more of these stupid county ordinances. Our State law is sufficient until we can get a better one.

Brawley, Cal.



FIG. 1.—Irving Kenyon's apiary and honey-house, near Syracuse, N. Y.

SCREEN DOORS FOR HONEY-HOUSES

A Practical Scheme for Making One that can be Opened Either from the Inside or Outside of the Building when both Hands are Occupied

BY IRVING KENYON

[When we visited Irving Kenyon, a beekeeper who lives just outside of Syracuse, N. Y., we were particularly pleased with some very ingenious contrivances that we saw at his place; and one of them was a scheme for opening a screen door without using a hand. The middle crosspiece projects beyond the side of the door, making it possible to open the door with the elbow if the hands are loaded. But the reader's attention is directed particularly to the "kick-open" projection at the bottom; see Figs. 2, 4, and 5. For a little simple thing that any one can make and attach to his honey-house doors, either solid or screen, it is the best labor-saver we have seen in any beeyard for a long time. To use the language of the boy, "It takes the cake."—ED.]

I take pleasure in describing some of the plans and fixtures used in our beeyard work which may be of interest to the readers of GLEANINGS. In making a screen door for our honey-house I had several points in view. First, it must keep the bees from getting in, and also allow any that may be carried in to find an easy exit. Second, it should be made so the wire cloth may be renewed easily. Third, it should be so arranged that it can not mash bees in closing. Our old door mashed any bees that were near the frame when it closed, giving the building an unsightly appearance; then it warped at the top enough to let the bees in. When put together with nails it was not easy to renew the wire cloth. The door shown in the picture obviates all of these troubles, as the description will show; besides, we have it now so we can open the door from either side with the foot if we have hives or supers in our hands.

By looking at Fig. 2 it will be seen that the inside of the frame of the screen door is the same width as the opening for the wooden door of the building, giving us the benefit of all the light and air possible.

Perhaps the reader will be able to understand better if I give the measurements I used; then he can vary it to fit his door. I would advise using soft pine for the door-frame, as it is less liable to swell and warp



FIG. 2.—Kenyon's honey-house screen door, showing how it is opened with the foot.

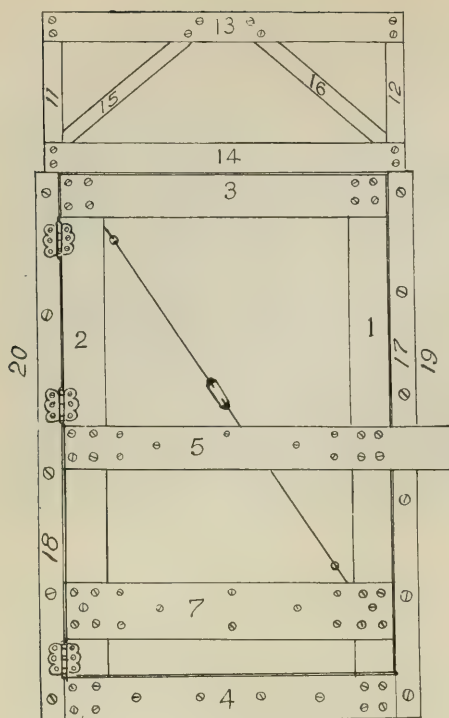


FIG. 3.—Diagram of Kenyon's screen door; the lower "kick-open" device not shown.

than most other woods. The reader will probably use such thickness of lumber as he thinks is required or is most convenient; but I will assume that it is all $\frac{7}{8}$ inch thick; so in giving measurements I will not mention thickness. I used $\frac{7}{8}$ lumber for all except pieces No. 13, 15, and 16. To help the reader to understand where each piece goes we will number them as per the diagram here shown. Nos. 1 and 2 are the sides, and are $2\frac{3}{4}$ inches by the length required to extend 6 inches above the door, and 4 inches below if the steps will allow it. Nos. 3 and 4 are $2\frac{3}{4}$ in. by 3 ft. $5\frac{1}{2}$ inches. No. 5 is $2\frac{3}{4}$ in. by 3 ft. $11\frac{1}{2}$ inches. This is the center crosspiece.

No. 7 is 6 in. by 3 ft. $5\frac{1}{2}$ inches. This piece should be so placed that its lower edge will be one or two inches above the threshold of the wooden door. See Fig. 2.

No. 6, not shown, is $2\frac{3}{4}$ by 3 ft., and goes between Nos. 1 and 2, directly back of No. 5, and is fastened to No. 5 with screws, the wire cloth being between 5 and 6.

No. 8, not shown, is 6 inches by 3 feet. It goes back of No. 7, and is fastened to it with screws. Nos. 7 and 8 are made wider to help stiffen the door and to push against with the foot to open the door from the inside when the hands are engaged. All of

these joints should be squared in a miter-box if possible.

The manner of putting the door together will be almost apparent from the diagram and the half-tone illustration accompanying. Strips 1 and 2, as well as crosspieces 6 and 8, not shown in the diagram, that go under 5 and 7 respectively, are temporarily tacked to the floor while the wire cloth is being fastened on. In doing this, care should be taken to see that the cloth is properly stretched to avoid any baggy places. Cross-strips 3, 5, 7, and 4 are next screwed in place, as shown by the screw-heads in the diagram, leaving the wire cloth under and between strips 5 and 6 and strips 7 and 8. Screws are used so that the wire cloth can be renewed at any time. The position of 7 and 8 should be just above the floor on the inside to receive the bunt of the foot to open the door when operator is coming out. By consulting the illustrations, Fig. 5 particularly, a sort of projection will be seen, the purpose of which is to enable the operator, when going in with a load, to open the door with one foot. When Mr. Root was here he seemed particularly pleased with the kick-open arrangement, and it is certainly a great convenience and a time-saver when both hands are carrying a load.

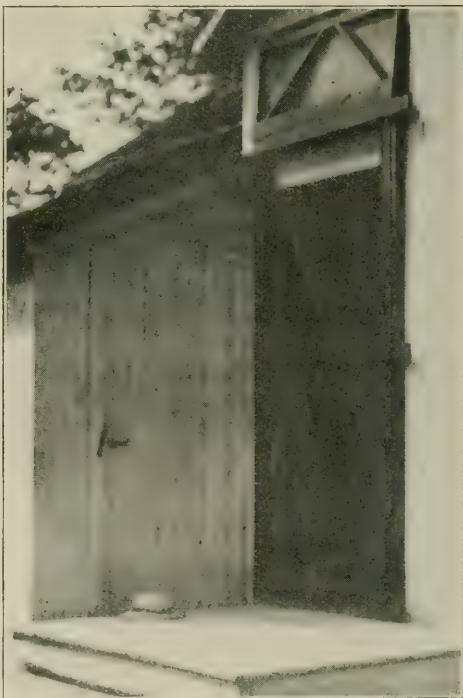


FIG. 4.—Another view of the door, showing the bee escape at the top.

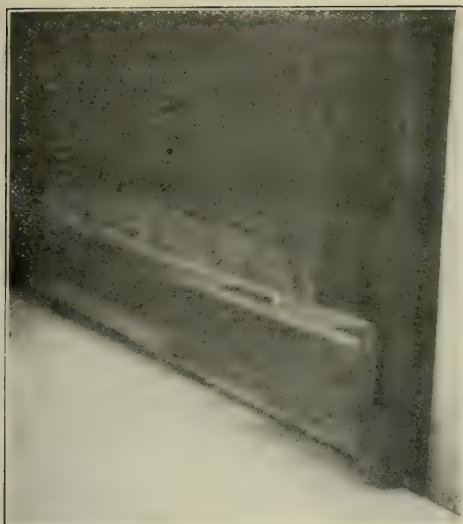


FIG. 5.—The "kick-open" device.

For the bee escape over the door we want two pieces, Nos. 11 and 12, $1\frac{3}{4}$ inches wide by 20 inches long. Next, two pieces, No. 13 and 14, about 2 inches wide by 3 feet $7\frac{1}{4}$ inches long. No. 15 is $1\frac{3}{4}$ wide by the length required to reach from the lower left-hand corner to near the center of No. 13. No. 16, of course, is to be the same length for the other side. Nos. 15 and 16



FIG. 6.—The bee escape above the window, on the outside.

are to be about $\frac{3}{8}$ inch apart at the top. It would be better if Nos. 11, 12, 15, and 16 were tapered to $\frac{3}{8}$ inch at the top. The bee escape is put together in the manner shown in the diagram over the door. The wire cloth is cut large enough so that it will project two inches above the top piece No. 13. It is then nailed to the back of pieces 13 and 14, taking care to have it project above 14 by 2 inches. Wire cloth and cross-pieces 13 and 14 are then screwed and nailed to 11, 12, 15, and 16 after they are in place. When properly put up, bees that collect on the inside of the door can crawl upward into the escape and finally out at

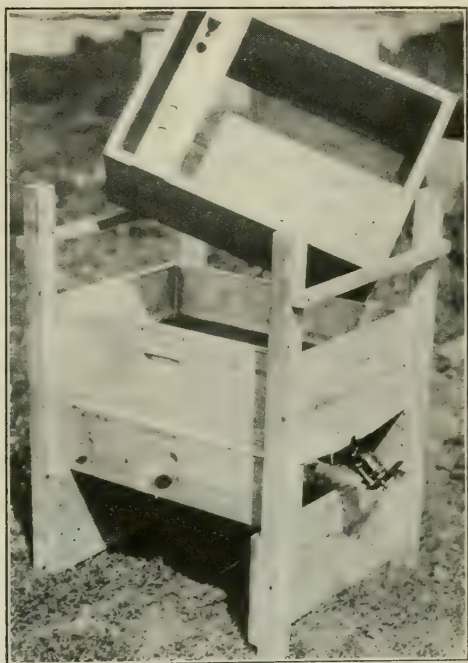


FIG. 7.—Uncapping-box with screen tray above, tipped up to show the construction.

the apex made by pieces 15 and 16 at the top.

In taking off our honey we sometimes find the bees in such condition that we can shake most of them out of the supers with a few shakes. Then the supers are taken to the honey-house and placed on end 3 or 4 high, so arranged that the light from the door will shine through them. The windows being darkened, the bees collect on the door, which we open occasionally, and jar them into the air on the outside. In doing this, or at any time when robbers are around the door, we kill very few bees, as about the only place where they can be mashed is on the three blocks, $2\frac{3}{4}$ inches

square. Any bees that we don't jar off the door soon find their way into and out of the bee escape at the top.

THE WINDOW-SCREEN.

Our window-screen is made as follows: Two pieces for the sides extend from the window-sill to within $1\frac{1}{2}$ inches of the top, and these are held together with the three crosspieces, $\frac{7}{8} \times 1\frac{1}{2}$ inches. The wire cloth is tacked on the inside of the frame. To make an exit at the top we nail some pieces $\frac{3}{8}$ by $\frac{7}{8}$ by $4\frac{1}{2}$ inches long to the top crosspiece, nailing them 3 inches apart. The lower end of these pieces should be even with the lower edge of the crosspiece. Next lay some $\frac{3}{8}$ by 3-inch pieces in between the upright pieces. Then lay on a strip of wire cloth 4 inches wide; next lay a $\frac{3}{8}$ piece over each one already on, and nail fast, the wire cloth being between the pieces. Owing to the fact that the frame of the screen is $1\frac{1}{2}$ inches below the top of the window, it leaves a space for the bees to pass out between the cleats nailed to the outside of the frame. It will be noticed that this window is close up under the eaves; see Fig. 6. For several years we had a window, the top of which was 20 inches lower than this one. The frame to the shorter window screen was made of pieces $\frac{7}{8}$ in. square. The side pieces extended 8 inches above the opening, and the top cross-piece was nailed on the outside of the side



FIG. 9.—The box complete.

pieces. This gave a bee exit $\frac{7}{8}$ by the width of the window; and with such good light and a large exit any bee that found itself on the inside would work out in a short time. Much to my surprise, the bees never found their way in here when inclined to rob. Our present exit being nearer the eaves, and consequently darker, is much slower to work the bees out. It is an advantage to have all the light possible above an escape of this kind.

UNCAPPING-BOX.

First make a box 6 inches high at the sides, and with the bottom slanting toward the center. Ours was made 15 inches wide and 24 inches long. This box should be lined with galvanized iron, and have a honey-gate in one end, Fig. 7. Next make a box 12 inches deep. Have it rabbeted 7-16 inch square at the lower outside edge, so it will rest down in the tin-lined box. It should have some $\frac{3}{8} \times \frac{7}{8}$ cleats nailed on the lower inside edge. Then make a loose-fitting frame to rest on these cleats, and cover the frame with $\frac{1}{8}$ -inch galvanized wire cloth. This frame should have a center piece to prevent sagging. See Fig. 8.

Next get a piece about 5 inches wide, and as long as the box is wide. Halve this at each end so it will fit in the box snug. Make holes through it to receive the end of the top-bar to prevent slipping while using the knife. See Fig. 8.

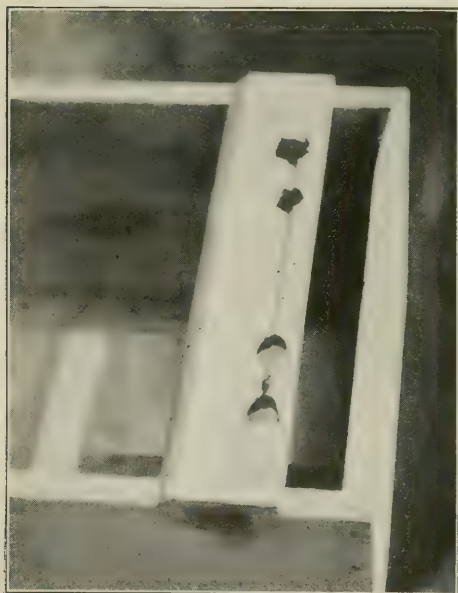


FIG. 8.—Closer view of the tray, showing the board across the top, with holes for the projection of the top-bars to rest in.

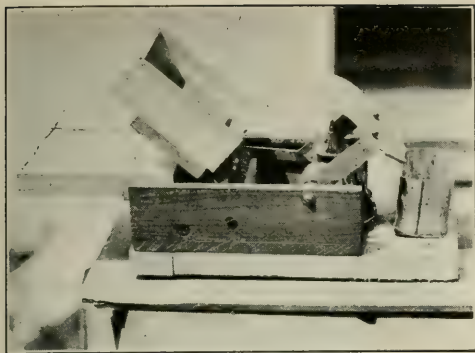


FIG. 10.—Changes made in the Dewey foundation fastener.

For a stand we take four pieces, 2x2, 24 inches long, for the corners. Next we get two pieces of $\frac{7}{8}$ stuff 10 inches wide, and as long as the stand is to be in width. Nail these to the 2x2, one inch from the end. Next nail two pieces, 6 inches wide and the proper length, to the 2x2, letting the lower edge rest on the ten-inch pieces, Fig. 9.

This uncapping-box was made when we did less extracting than now. We are about to build a larger one on the same plan. The new one will be 2 feet wide by 6 long.

THE DEWEY FOUNDATION-FASTENER.

Fig. 10 shows some changes we made in our Dewey foundation fastener. As the sides were inclined to spread and interfere with the working of the machine we put a piece the right length across the inside, and fastened the sides to it. When we received the machine it was rigged to operate by the foot with a chain. Mr. P. G. Clark gave us the idea of operating it by pressure of the body. Add a piece about six inches wide



FIG. 11.—The fastener, operated by pressure from the body.

to the machine so as to bring it nearer to the body, when a slight forward movement will operate it. See Fig. 11. To hold the machine in place we cut a board as long as our work-bench is wide; then, laying the board on the bench, with one end against the wall, fasten the machine to the board where it is wanted. After a little practice the machine can be operated very rapidly.

Syracuse, N. Y.

MOVING BEES WITH HIVE ENTRANCES OPEN

Nothing Used but Tobacco Smoke to Keep Bees in the Hive

BY GEORGE J. VAN DE VORD

We have a method by which we can go into an apiary, and, within fifteen minutes after lighting the smoker, safely pick up and load full colonies of bees without the labor of fastening a screen over the entrance, ventilating the hive, or previously preparing them in any way, except giving them a moderate smoking. Then we can drive to the new location without danger of having horses, attendants, or passersby stung, and also without the danger of smothering over-populous colonies.

The plan was suggested by the necessity of being able to move colonies in old warped or twisted hives that were difficult to make bee-tight. Then sometimes an old hive will give way on the road; and as the bees are always more or less infuriated by being shut up it takes lively and skillful work with the smoker to avoid trouble with horses; and if such an accident occurs on a well-traveled highway there is a great deal of danger of becoming a nuisance to the traveling public. While it may be a pleasant break in the monotony of life to a disillusioned beekeeper to watch the people frantically scamper away from his load of "pets" whenever by accident they get loose, it adds nothing to the good will that these people bear him or the beekeeping business in general if they are compelled to hustle away or stay and be stung.

Necessity is ever the mother of invention. This part of the east coast of Florida has been enduring a succession of very poor years for bees, and I have often had to move my colonies or lose them. My hives, moreover, were mostly second-hand to begin with, and it is very hard to make them bee-tight. Furthermore, I have had to move with as little loss of time as possible.

After trying different kinds of smoke into, on, and around hives from which bees were coming through various unforeseen



Geo. J. Van de Vord moving 41 colonies of bees, using only tobacco smoke to keep them in the hives.
Mr. Van de Vord has moved bees for over four years without screens over the entrances.

cracks and crevices, I found that smoke having a part of its volume derived from tobacco has a very sedative effect without being stupefying or harmful if not used excessively. When I first tried the plan I risked it on only a small load. Though I did not close the entrances, and though I smoked the bees but a very little before loading them, I found that scarcely a bee flew from the hive during the journey which lasted about two hours; and the few that did were not looking for trouble nor making any. Since that time about four years have elapsed, and I have used the plan several times each year, and invariably it has kept the bees in a very quiet condition, even though they are sometimes severely jolted. The use of the tobacco smoke has furnished me a method of controlling them with the least possible expense of time in preparation.

In June, 1910, I had a double team hauling bees all day in hives with open entrances. We were moving first from my apiary at Ormond to a barge at the river front. Although we drove right up to the apiary, neither the driver nor the horses were bothered by the bees, even though the horses were left hitched up at all times while loading and unloading. The barge was then hauled down the river to Daytona that evening, and stood at the side of

the river facing Beach St. all day. The bees flew freely from the hives on the barge, and gathered pollen all day long, while another team and driver were hauling more bees from Daytona and loading them on the barge. These two sunshiny days in a Florida summer were a thorough test of the tobacco method of control, for part of the bees were Holylands and hybrids, and as vicious as yellow-jackets.

The barge was finally towed down to Ponce Park, the hives being stacked in rows three and four high. At this point we had to tie up for the rest of the night and all the next day, on account of adverse winds and the tide. During the next night, however, the wind dropped; and as soon as the tide was favorable we crossed to the North Indian River and moved down to the new location three miles south of Coronado, where, during the fourth day, the colonies were loaded. The bees began flying freely at once in quest of fresh water; but they were gentle, and not at all inclined to sting. The captain of the tug, although very nervous about the bees, and entirely unacquainted with their habits, volunteered to help in the unloading, and did so without veil or gloves, and without being stung.

The accompanying illustration of an auto truck loaded with bees was taken in May of this year. There were 41 colonies in all,

18 of which were two-story and 23 one-story. On this occasion I went to the apiary that I intended to move, at 8:45 A. M., lighted the smoker, and put in about two tablespoonfuls of tobacco dust and clippings, the rest of the smoker being full of partly rotted sacks. Then I went to each hive and puffed in two or three good strong blasts of this smoke at the entrance. I went around the apiary twice; and then, the auto having arrived, we started to load. The chauffeur was to help load; but he was afraid to go into the apiary on account of a few field bees in the air that were not in the hives when they were smoked, but we were safely loaded at last.

After we were started we moved down to Beach Street, where we were expecting a photographer. While waiting for him to arrive I opened a few hives and lifted out a comb or two to show several interested observers that all those "boxes" were packed full of bees that densely covered each comb, and yet they were not stupefied, as shown by the fact that they flew readily when brushed off with the fingers.

After the picture was taken we went on across the bridge, over the river, and up to Sea Breeze; unloaded the 41 colonies, and were back home within three hours. Before the last of the hives were lifted down from the truck the bees had caught the odor of the sweet bay blossoms all around them, and were commencing to fly very

briskly. I had to use smoke on those in the auto to keep them in, for those already unloaded were fairly tumbling out of the hives and relocating themselves. The strange thing about it all was that they were not cross, even though they had sniffed tobacco instead of the perfume of the blossoms.

I use no tobacco in the smoker for ordinary work in the apiary; and as a word of caution I should like to say it is a mistake to use nothing but tobacco in a smoker, or to blow the smoke into one hive for several minutes, for this makes the bees sick, so that they are in as bad shape as if they had been fastened in and overheated.

Daytona, Fla.

[With an experienced operator in charge, who is really an expert along this line, like our correspondent, and with hives that can not be conveniently and securely screened, we should undoubtedly advise the plan recommended. Perhaps we should go further and advise the use of the tobacco method of control generally; but if the hives are sound, so that they can be quickly and cheaply screened, and if the beekeeper has not had considerable experience, we should feel safer if the bees could not get out. If a three-inch rim is tacked on above the brood-chamber, and water carried along with which to cool the bees of any hive that show signs of becoming overheated, there is usually very little danger of trouble or excessive loss.—Ed.]



Allender's apiary of black bees. Colony X by the fence has produced on the average \$10.00 worth of honey each year.



L. C. Root, veteran beekeeper as well as partner, son-in-law of, and co-laborer with Moses Quinby.
Photographed by Edward F. Bigelow, Sound Brach, Conn.

A COLONY THAT AVERAGED \$10.00 WORTH OF HONEY A YEAR FOR TWENTY-TWO YEARS

BY G. D. ALLENDER

The illustration shows my apiary of black bees, which for gentleness, hardness, and ability to gather honey, have never been surpassed by any other varieties that have been brought into this locality. For instance, the colony in the hive marked X at the extreme right by the fence has been on the same brood-combs for 22 years. During this time it has been fed but once, and, with the exception of two years, has made from \$4.50 to \$28.00 of surplus honey each year—an average of about \$10.00 per year for the whole time. Furthermore, there has been about one swarm for every two years from this hive, on the average.

Kerens, W. Va.

L. C. ROOT AS HE IS TO-DAY

BY DR. E. F. BIGELOW

Under separate cover I am sending what seems to me a remarkably good photograph of our veteran beekeeper and missionary in beekeeping interests, Mr. L. C. Root, of Stamford, Ct. Please note how clearly the photograph shows even the brood-cells. Mr. Root has been doing good work in this vicinity by interesting a large number of people in beekeeping. He talks at various bee-gatherings, and is very active in speaking a good word for the bee naturalists. I count myself as primarily his pupil; and through me quite a large number, as you know, have become interested.

The other photograph* shows Mr. Root teaching a beginner. The man at his left is a workman who, not over an hour before Mr. Root's lesson, went running frantically across the fields stating that no amount of money would get him to go near those things. But this workman was to assist in taking care of the bees, and Mr. Root succeeded in showing him that bees are not such dreadful things as he thought they were. You will observe that he inspired confidence, so that the man came up without gloves or veil, and readily handled the frames. I think this is a remarkable example of taming a would-be beekeeper, who, like the public in general, had held frightful ideas regarding the terribleness of bees.

I wish I could have obtained a "before and after" photograph—that is, it would be interesting to show your readers a pho-

tograph of this man tearing across the fields, and striking right and left, about an hour before Mr. Root took him in hand and showed him that his nervousness and not the bees was his greatest enemy. I recently had a similar experience in teaching a gardener who had never been near bees to go up to the hive and take out the frames, without gloves or veil. It is true my man, unlike Mr. Root's, got stung once or twice, but he had nerve enough to say, "And sure you must expect all those things in a lifetime, and I guess they will feel better when I get used to them."

Sound Beach, Ct., June 7.

MY FIRST ACQUAINTANCE WITH L. C. ROOT BY A. I. ROOT.

When GLEANINGS was started, forty years ago, it was, I regret to say, quite the fashion for bee journals to criticise each other; and not only that, some prominent writers seemed to think that it was right and proper to fill the pages of our bee journals, not only with unkind but unnecessary criticism; and I am sorry to have to own up that your humble servant was given to that sort of thing; and as an illustration I did one thing I shall always regret. While I revered and respected both Langstroth and Quinby (both then living), I criticised father Quinby's hives that were then used largely, and perhaps are still, by a large number of York State beekeepers. They resented this, and took exceptions to A. I. Root and his "new methods," etc. I believe it was at a York State convention a resolution was passed, to the effect that A. I. Root, with his "dollar queens" and "one-pound sections," was doing more harm to beekeeping than he had ever done good. I think it was about this time, or shortly after, that, through the influence of the Holy Spirit, I got a new glimpse of things, and I started out on a new track. One of my departures was to attend a down-east beekeepers' convention. I can not remember now where it was, but I think L. C. Root occupied the chair. During the forenoon I had taken part in some of the discussions, and, as a matter of course, showed a friendly spirit as well as I knew how, toward the good people who had said unkind things about me (which I no doubt richly deserved) only a short time before. At the noon hour I shook hands and had a friendly talk with many of the prominent men present. As the session opened after dinner I had one of my "happy surprises." Our good friend L. C. Root, so far as I can recall, said something like this:

"I am sure I voice the sentiment of at least the greater part of our convention, if

* Cover picture for this issue.—Ed.

not all, in saying we are very happy to have with us to-day Mr. A. I. Root, of Medina, Ohio. We are not only *glad* to have him with us, but I am sure I voice the sentiment of quite a good many when I move that we as a convention give him a hearty welcome; and since we have become better acquainted with him, express regret for the unkind things that have been said in regard to Mr. Root in some of our previous conventions."

If I have not gotten the above correct, I think it was the sentiment of what he said. I was at the time greatly impressed with Mr. Root's ability as an officer, as well as a beekeeper and as a genial Christian character. Since that time there has existed only the most friendly relations between ourselves and the great beekeepers of New York; and I am glad to add that the fashion of having unkind sparring and jangling in print in the bee journals (*American*, at least) has been done away with. I believe all now recognize that we have no room in our journals for personalities—especially personalities among good men.

When a great man dies, a kind Providence seems to have so ordered it that his mantle shall fall on the shoulders of some younger man. This seems to be emphatically the case with our good father Quinby. In an edition of the book, "Quinby's New Beekeeping," published by the O. Judd Co. in 1899, we find the following which we take from the opening words of the publishers' preface:

After the death of Mr. Quinby, the preparation of a new and revised edition of his work, which he had in contemplation, fell into the hands of Mr. L. C. Root, his relative and long-time business associate. This secured the incorporation of Mr. Quinby's latest views and methods, and the introduction of important improvements that had then just been tested, especially that of comb foundation, and the treatise thus embodied the experience of two skilled apiarians. The work was so largely rewritten by Mr. Root that he might in justice have claimed to be its author; but with rare modesty, and in a spirit of reverence to the memory of one who had devoted his life to the advancement and popularizing of bee culture, he preferred to retain the title of "Quinby's New Beekeeping."

AN OUTSIDER IN COLORADO

Swarm Control

BY DR. E. F. PHILLIPS

Continued from June 15

In comb-honey production in the East, all other problems fade into insignificance in comparison with the control or prevention of swarming. The number of colonies that can be kept is limited by the number that can be examined about once a week during the swarming season to do whatever is necessary to keep the bees at home and

working. It is, therefore, unusual to find men with 600 or 800 colonies run for comb honey in a number of outyards. Although some of the beekeepers of Colorado do not agree with the idea, it seems almost certain that conditions are not so conducive to swarming in Colorado as they are in the white-clover region. The usual methods of control seem to be about the same in Colorado as they are in the East. The best practice seems to be to examine every colony once a week for queen cells; and with several hundred colonies in yards scattered over the country this is no sinecure. A beekeeper who is kept busy with seventy-five or one hundred colonies should begin to suspect that he is wasting time and energy somewhere when he learns what is being done in Colorado. It is not exactly necessary to keep the grass worn away in an apiary in order to give the colonies the care necessary.

An important consideration in favor of the Colorado beekeeper is the fact that he is not interrupted in his work by inclement weather to the extent that the eastern beekeeper is. It is rather safe to plan for six days of work a week, with a chance at one more if the beekeeper can persuade himself that his bees have fallen into a pit.

NO WAX MOTHS.

As has been mentioned a number of times, the common wax moths which add interest to the monotony of beekeeping in the East are absent in Colorado. As Mr. Foster mentioned in a recent number of *GLEANINGS*, the Mediterranean meal-moth sometimes eats the pollen from stored combs. Messrs. Dyer and Burrows, of Boulder, brought a large number of colonies from Arkansas not long ago and incidentally imported the larger wax moth. Not being accustomed to thinking of damage from this source they were surprised to find a mass of webs in their workshop where the empty combs were stored. Since then the moths have entirely disappeared. Some entomologists would confer a favor by learning what there is in the climate of Colorado which is injurious to the bee-moth.

BEEES AND FRUIT.

The value of bees in carrying pollen is seemingly quite generally recognized by Colorado fruit-growers, and I learned of a number of instances where a few colonies were kept solely for that purpose. This is gratifying; but at the same time the practice opens up a source of danger to the professional beekeeper. It can scarcely be expected that a beeowner who is not a beekeeper will know how to detect and eradicate disease, and such apiaries may become

a worse menace than the almost universally neglected farm apiary, and almost as bad as that of the enthusiastic amateur. This is well illustrated in Massachusetts, where bees are used extensively in greenhouses to pollinate cucumbers. The practice offers a sale for colonies; but the discarding of weakened colonies is often blamed for the spread of disease. At the same time the awakening of interest in bees among fruit-growers will result in good beekeeping, especially in getting support in asking for new laws.

In most cases, when the loss of colonies due to the spraying of fruit trees is reported, it is safe to suspect that the beekeeper is mistaken. In the majority of such cases the trouble is probably a brood disease, and European foul brood is a safe guess. When such cases are reported, it is our practice to write for brood which may be affected, and it is usually easy to determine the cause of the trouble. However, several cases were reported in Colorado in which rather serious results to bees have followed spraying fruit trees in bloom. There is a State law prohibiting such practice, and in several cases it has been found profitable to use it as a club.

PURE MATINGS.

Apiaries are quite close together in the alfalfa section of Colorado, and pure matings are at least as difficult as in the East. However, there are, not far from the irrigating regions, places in the mountains where there are no honeybees. Mr. Foster informs me that he has seen white clover in profusion with nothing to work on it except wild bees. Such locations in the mountains are usually too inaccessible, and too limited for honey-producing apiaries; but they would make ideal situations for mating queens. This is an idea that belongs to Mr. Foster; but it may have occurred to many another beekeeper near the mountains. If queens can be mated without too great an expenditure of time and money per queen it would be a great thing for Colorado beekeepers if Mr. Foster can carry out his own suggestion in his capacity as State Inspector. The difficulty is that mating is the most expensive part of queen rearing, and many a man who has had visions of wealth from queen rearing has later found him selling queens for less than they have cost him. But we never know how a plan will work if we merely sit by and speculate. It is to be hoped that the plan may be tried.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Probably no phase of Colorado beekeeping has attracted more attention among the

beekeepers of the country than this co-operative association. Not having had much opportunity personally to study the workings of the organization, and not being particularly familiar with the methods of successful co-operative organizations, it would not be wise to discuss the merits of the various phases of the work. However, judging from the sentiments expressed by various beekeepers, and by the satisfaction which seems to prevail among the members, one is forced to the conclusion that it is a good thing, and that beekeepers in other localities would be benefited by a study of the plans of the association. So far as could be seen, there is no peculiarity in the conditions in Colorado which makes success in such an enterprise more probable than in other States. With the largest markets in the East there is the advantage in car-load shipments of a lower freight rate, but this applies equally to other localities.

The organization and enthusiastic management is doubtless largely due to the manager, Mr. Frank Rauchfuss. A question which promptly and naturally comes to mind is, whether the success depends solely on Mr. Rauchfuss or whether the organization would continue in as satisfactory a manner if he were to retire. This question is not of such vital importance to the Colorado beekeepers as long as Mr. Rauchfuss remains on the job; but it is of vital importance to beekeepers in other States contemplating a similar organization. Is it necessary to have a man of exceptional ability, or can any organization of beekeepers expect to find a man of sufficient ability and honesty to make a success of such a movement? Naturally we can not expect Mr. Rauchfuss to volunteer to retire, nor the association to retire him for the sake of answering this important question; but there is such great opportunity for the advancement of the interests of beekeepers by co-operation that the beekeepers in the several States should attempt to decide the question, and this subject should receive careful consideration in all parts of the country.

The association has very materially increased the price obtained by the producer for honey, especially comb honey, and has been instrumental in bringing about greater uniformity in the product and its grading. Sections containing bottom starters of foundation, and with full separators, have the sanction of the association, and the association's grading rules are carefully enforced. Bee supplies are sold at a reduction to all beekeepers, and other commodities are often obtained at a material reduction for members. Wax is sent to be

made into foundation in large lots for members. The association also carries on a local business in bottled extracted honey. These things in themselves are annually worth many dollars to the members; and, in addition, at the end of the year the profits of the association are equitably divided by a unique plan. The organization has been in successful operation for a number of years, and it is high time that beekeepers elsewhere were giving to this subject the consideration it should have. It certainly should be possible for the beekeepers in the best beekeeping States to organize on a business basis.

It should be mentioned that the Colorado Honey-producers Association is entirely distinct from the State Beekeepers' Association. It is obviously necessary to have money with which to conduct business, and unless some philanthropist puts this up it will be necessary for those who will reap the benefits to buy stock in the company. While a beekeepers' association can help its members materially, it is barred from many essential lines by lack of funds, and it will be just as well not to try to have the two organizations in one. If the business organization reduces the efficiency of the other, it matters little so long as the interests of the beekeepers are concerned.

COLORADO.

No normal outsider could write a paragraph on Colorado beekeeping without having something to say about the marvelous scenery. And yet it is utterly foolhardy to attempt a description that will not be a sacrilege. In our 1000-mile trip Mr. Foster and I crossed the Tennessee Pass, and re-crossed the mountains over the celebrated narrow-gauge route by Marshall Pass, passing through Eagle Canon and the Canon of the Grand River going west, and the Black Canon of the Gunnison on the eastern trip. The Royal Gorge was part of a night trip going west; but we came through by day on the return, so that it was not missed. Where there was no special feature to be seen, there was always still enough of interest to excite any but one surfeited with scenery. So many interesting situations present themselves that one is tempted to forget his mission and stop to fish, hunt, or simply enjoy the views. The first trip to the Colorado Mountains should be for pleasure only, so that one may become accustomed to the grandeur before any duties come to distract attention. However, a hurried trip on business infinitely surpasses none at all.

All the world knows that the climate of Colorado is especially exhilarating; but to

know this to the full, one must be there in early autumn. No wonder that those unfortunates who have gone to Colorado on account of pulmonary troubles become so enthusiastic in their praise of the place where health is restored to them. It is almost worth having tuberculosis for the opportunity of knowing the climate. If you get tuberculosis or an opportunity, visit Colorado.

Washington, D. C.

RENDERING PARTIALLY DRAINED CAPPINGS IN A SOLAR EXTRACTOR

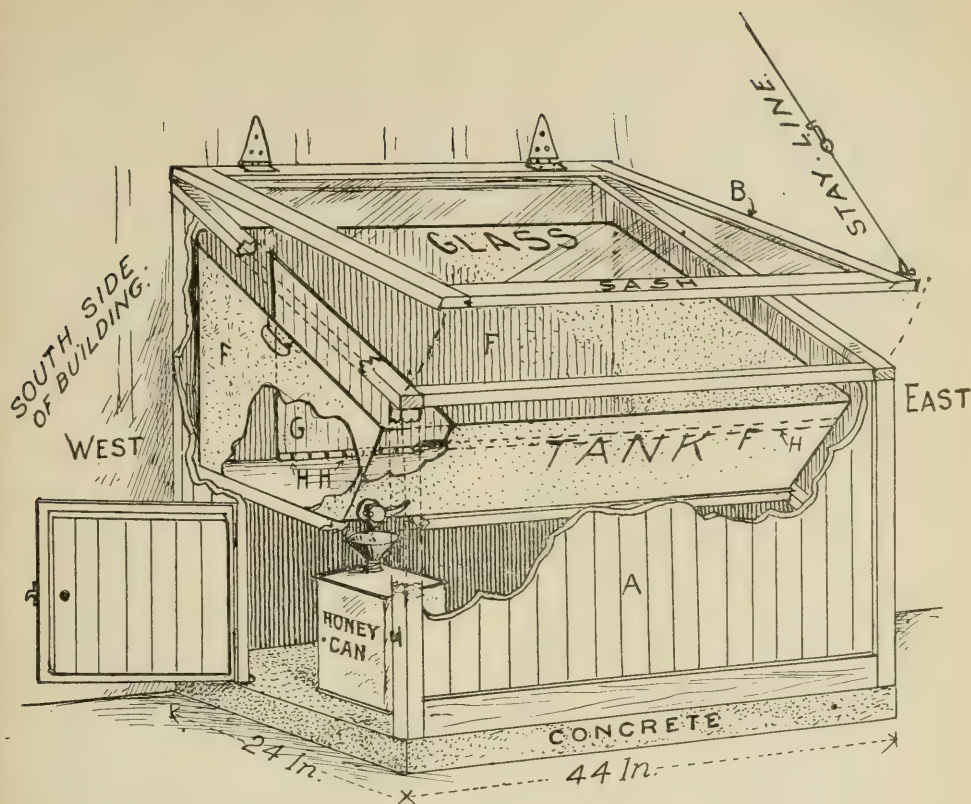
A Plan for Getting All of the Honey by Partially Melting the Cappings

BY HENRY STEWART.

There has been considerable inquiry for a method of handling cappings that will do the work better than the capping strainer or melter. I have a plan which I have used for several years, which I consider ahead of either of these. It is a sort of modification of the solar extractor. I call it the *solar honey-separator*. While it is somewhat the same in principle as the regular solar extractor, it does work that can not be done in the latter, and the honey is still in a very good condition as it runs out, as it is only slightly if any impaired. The best feature about it is that it is ready for business any time when the sun shines from May to October, not only for cappings but for odds and ends, broken combs, unfinished sections, etc.

This separator may be built anywhere; but to secure additional reflected rays of the sun it is better to choose the south side of a building. Reference to the illustration will show that A is an enclosure built on a concrete foundation adjoining the south end of my honey-house. It is 44 in. long, 24 in. wide, 36 in. high in front, and 50 in. high at the back. This enclosure is covered by a glass door, the under side of which is lined with felt or woolen cloth around the edges to make it tight. A double glass adds to the efficiency of the separator, although if not too much is expected a single glass is sufficient. To prevent rain water beating in, the hinge side of the glass door should be covered with a strip of oilcloth.

About two inches under the glass is a galvanized iron tank, F, resting on a framework so that it can be removed easily. This is 36 in. long, 14 wide at the bottom, and 18 wide at the top. It is 15 in. high in front, and 20 high at the back. Four inch-



es from the left (west) end is a partition G, which is soldered tight to the sides and bottom of the tank F, except a narrow opening $\frac{1}{4} \times 3$ in the lowest corner. This acts as the separator, as the wax, being lighter than the honey, floats on top of it, and is, therefore, confined to the right side of this partition, the honey flowing over through the narrow slot at the bottom into the four-inch compartment between the partition and the left end of the tank.

A slatted bottom, H, which inclines toward the back of the tank, supports the cappings in the sun, as it is located in such a position that no part of it is shaded.

To catch the cappings from the knife, I use a galvanized iron stock-tank having a slatted bottom above the true bottom, and a honey-gate at one end. The cappings are allowed to accumulate and drain over night. The next morning, with a pitchfork I remove a wash-tubful of cappings from which most of the honey has drained, and dump them into this separator on the slatted bottom. If the sun is not shining very

hot I stir them three or four times during the day as they melt. If the sun is very hot, I shade the glass partially by fastening over the top of it a piece of burlap. As the cappings warm up, the honey and a little of the melted wax drops through the false bottom into the cool shaded portion of the tank beneath, the honey running through as the level rises into its own compartment. The bulk of the cappings remains in a semi-melted state on the slatted bottom. This mass is allowed to harden; and the next morning, by the use of a chisel, it is pried loose and stored away until a convenient time for rendering into wax with the ordinary wax-press.

The honey is usually drawn off while it is warm, into a sixty-pound can, and strained through a wire-cloth strainer at the mouth of the can. The melted wax that drops through the slatted bottom is allowed to accumulate until the time comes for rendering, when it is removed and put through a wax-press with the rest.

Prophetstown, Ill.

ALCOHOL FOR CLEANING SECTIONS

BY S. N. HATHAWAY.

I have noticed that all my late sections are soiled more than those used for the early crop. This probably comes from the natural desire of the bees to chink up every crack and cranny as a preparation against the cold winds of winter. Some swarms seem to try to daub on all the propolis they can make, while others are quite modest in the use of it, even to the last super. I had several supers this week that were so badly daubed that I nearly despaired of making them presentable in the shipping cases.

As I sat thinking how this could be entirely removed in some other way than by scraping so much, I chanced to see a bottle of denatured alcohol. Knowing that it would cut wax and propolis I made a swab by rolling some soft cotton cloth and tying it so as to make it convenient to use as a brush. I applied it freely, and then with a piece of cloth rubbed it off and scraped with the knife. When the sections were badly stuck up I repeated the dose and rubbed it again. It was a success; for when all had been treated, and were in the cases, they were as clean and nice as a newly filled super. This may not be new to the "old soldiers" in the business; but it is new to me, and is a time-saver.

GLASS NOT NECESSARY IN SHIPPING CASES.

It is my opinion that a one-tier 24-section case is the best for all purposes, with only a two-inch glass, if there must be any glass at all. The more glass used, the weaker the case is, and the more cracked sections in the cases. So I say, *no glass*. I think a bottom made of $\frac{7}{8}$ -inch board, cut to fit inside the case, would make it perfectly safe, as there would be no spring to the bottom, and consequently no chance to crack the honey unless the case should be dropped by some careless handler.

If the whole width of the front of a case is glass, a buyer sees but four sections, which may be extra fancy or No. 1; but if the packer is not honest and square, it's a guess as to the rest of the case. My verdict is, *no glass*. Take off the cover, and then you will know what is inside.

Each case should have a printed card, pasted on the top, reading, "Comb Honey, this side up. Handle with care." Following the above should be printed the several grades of honey, all of which may be crossed off with a pencil except the one packed in the case. The weight, tare, and net should be on the same card.

Waldron, Ill.

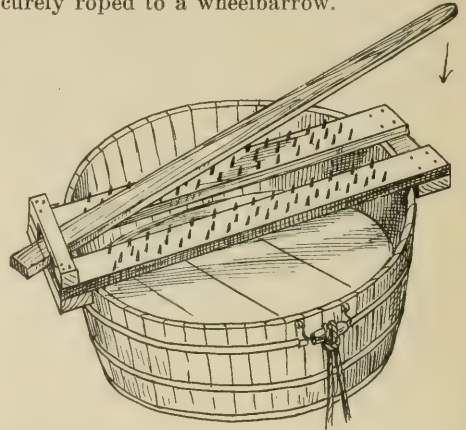
[You are entirely right in urging no

glass in comb-honey shipping-cases. More and more glass is being discontinued by the large producers, and we hope ultimately it will be a thing of the past. Shipping-cases with solid back and front are much stronger than the glass cases.—ED.]

A SWEET-CLOVER-SEED STRIPPER

BY C. A. BUNCH.

Last fall I made a seed-stripper for gathering sweet-clover seed, which I found very useful. The construction is explained very fully by the illustration. The nails shown in the crosspiece are ten-penny size, driven zigzag about $1\frac{1}{2}$ inches apart. The stripper should stand on a good-sized wash-tub or tight box, and the whole apparatus securely roped to a wheelbarrow.



It takes three persons to gather the seed to the best advantage—one to cut the sweet clover with a sickle, and carry it to the stripper; another to draw it through the stripper, and run the wheelbarrow, and a boy or girl to handle the lever. We gathered four bushels of seed last fall, and the cost did not exceed two dollars per bushel.

When we get ready to harvest the seed we move the whole outfit out to the sweet clover, with a wagon, then proceed to rope it to the wheelbarrow. I do not fasten the rope to the tub, but to one end of the frame, then down under the wheelbarrow floor, and up to the other end of the frame, which holds the whole thing firmly. The rope must be drawn tight so as to make every thing solid, as pulling the clover through under the lever requires considerable strength. It is a good plan to spread a grain-sack or cloth across the handles of the barrow to catch the seed that might fall outside.

Lakeville, Indiana.

H heads of Grain from Different Fields

Australian Honey Crop Harvested in Kerosene-cans

In reply to a question, Jan. 1, p. 18, the statement was made that if second-hand cans had been used for benzine, they would do to store honey in; but if for kerosene, they would be of no use for the purpose. I think you are wrong. Practically the whole crop of Australian honey is put up in second-hand kerosene-cans. By "second-hand" I do not mean dirty or rusty cans. They are quite bright and clean, but they once contained oil. Many beekeepers purchase them by the thousand at 75 cts. per dozen from the dealers in Sydney and other large cities.

The cans have first to be mended—that is to say, the holes made to get the oil out have to be patched; then the round bung is taken out, and then they are ready for washing. A good solderer will mend 400 in a day; but it takes two boys to wash the same number in the same time. The method is as follows: The cans are spread out on the ground in long lines, about six deep. Boiling soda water is used (15 lbs. of soda to 20 gallons of water). One quart of this boiling soda water is put into each of six cans. The cans are picked up one at a time, and vigorously shaken, care being taken to see that the water gets right around the tin. This water is thrown away. The washer has a pad on each hand, with a piece of cloth next to the tin, and a piece of thick leather next to the hand. He picks up the can so that the pad on the right hand closes the bung-hole, and this pad must be held tight, as shaking practically boiling water generates steam, and if a firm grip is not maintained there is every possibility of getting scalded.

After the soda water the same process is gone through again with boiling water, then they are rinsed with cold water, and turned upside down to drain. After draining they are placed right side up to allow the sun to sweeten them for a day, then they are packed away in an airy shed, and before being used each one is inspected, and if there is any smell it is rejected and washed again; but if the boss is around to see that the lads do their work well there are not many rejected.

The reason for using second-hand cans is one of price. They cost 72 cts. per dozen. The new tins cost \$2.64 per dozen, and they have to be given away with the honey; and as the returns are frequently less than \$1.92 per tin for the honey, you can see that relatively the price of the tin is a big item.

MAJOR SHALLARD

South Woodburn, Australia, April 16.

[See Editorial elsewhere.—ED.]

Using Gasoline-cans for Honey

Editor Root:—In regard to using gasoline-cans for honey, page 18, Jan. 1, are you not mistaken in advising their use? I once drew some gasoline out of the auto into a two-quart Mason fruit-can. It stood in the can for some time, and then it was taken out, and the can thoroughly cleansed and then used for canning fruit. When the fruit was opened it had such a peculiar flavor that we could not eat it. I asked my sister what made it, and she said she had used the can that had contained the gasoline. For this reason I should be afraid it would give the honey a peculiar flavor as it did the pears. Gasport, N. Y., Feb. 27. JAMES H. SPROUT.

[If the cans contained a good grade of gasoline we do not see how the honey could be tainted, but, at the same time, we may be mistaken. Certain it is that bright new cans are none too good for as expensive a product as honey. If kerosene-cans are cleaned as thoroughly as described by Major Shallard, above, they ought to be as good as new.—ED.]

Honey-crop Reports from Southeastern Florida

Reports from the titl region show that the surplus flow there was good. Reports from the black and white tupelo-gum section show that the flow from these sources was either a flat failure or very light, owing to the great flood and the amount of rainfall which occurred during its blooming season. Reports from the saw-palmetto region show that it gave only a very light flow, owing to weather conditions. The flow from the mangrove was not as good as was expected.

Citrus fruit in its region gave the bees a good

start in early spring by a flow a little heavier than usual.

The gallberry gave a good yield in its region.

The flow from chinquapin was very light.

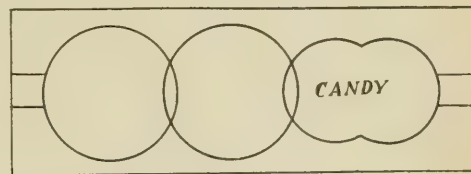
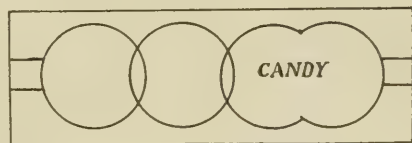
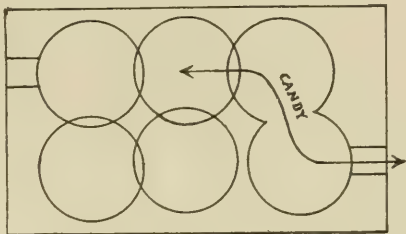
The poplars, or tulip, gave a good flow over the middle and northern portion of its region; but it was very light over the southern portion. The prospects for the flows which are still to come are good.

Cordele, Ga.

J. J. WILDER.

Too Little Room for Candy in the Queen-cages

I notice very little said of the new queen-cage of late. I think many queens are lost by the candy being eaten out too soon. Many times the candy may be half eaten out by the bees when queens are received. If the old cages are to be used I think it might be well to make them as indicated by the



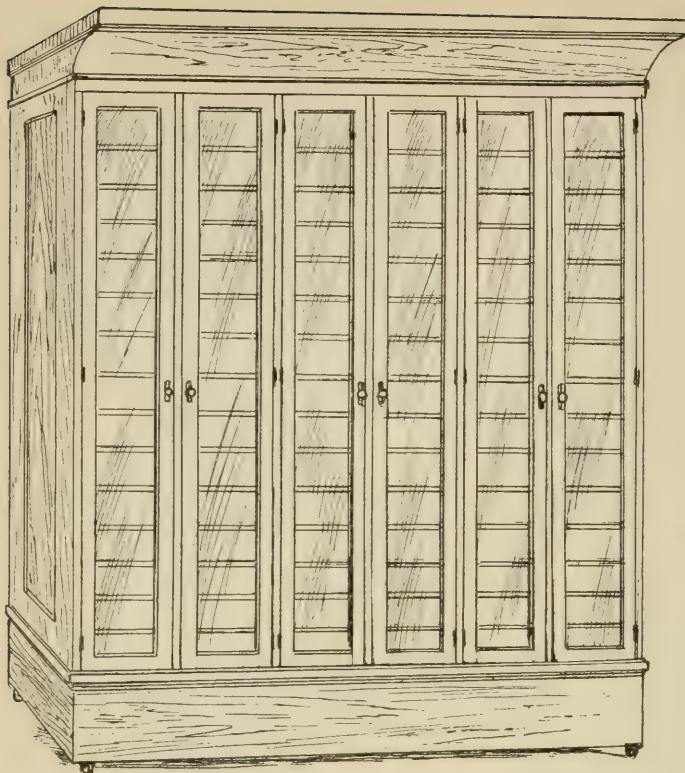
enclosed drawings of the different cages, and then use a comb instead of cardboard.

Worthington, W. Va., Dec. 15. L. H. ROBEY

[The only objections to your scheme of providing more room for candy is the increased weight, and, of course, increased postage. There are two standard sizes of queen-cages. The smaller size is just as large as it can be and still come under the weight for one-cent postage. In the same way, the larger cage is just large enough so that it will go for two cents. Of course, we might redesign the cages, and provide more candy room, and thus use less space for the bees and queen. This, we believe, would be a mistake. The longer the distance a queen has to travel in the mails, the more attendants she should have. But for export cages, the larger size will contain 50 to 60 bees, while the smaller size, for domestic use only, and for short distances, will accommodate 10 bees besides the queen. Taking every thing into consideration, it is our opinion that a piece of pasteboard, so placed over the candy that the bees have to gnaw it for 24 hours to get it away will practically secure the same results as the holes of candy.—ED.]

A Loud Warning to Beekeepers

Mr. Root:—Perhaps you can remember giving a careful warning, well worded and thoughtful, about looking well to harness and wagons. I was proud of your comments at the time; but although I had my harness and rig all right, we never use brakes here; and in coming down hill with a heavy load of



A Dust-proof Showcase for Honey in Shallow Frames

We have a large walnut showcase, formerly used for something else, that now stands in the grocery to hold shallow frames of honey. With its six glass doors it will accommodate 225 frames in each division, 15 deep on each shelf, so 1350 are provided for, and, at 4 pounds each, 5000 pounds can be put away safely, and thus protected against moth and dust. A little sulphur will protect a great many combs, empty or full—5% depth is shown. This case is an object lesson to beginners, and traveling men say that nothing approaching it in size of display have they seen in their travels.

We keep the front attractive, and store surplus combs at the back. It sells honey on sight, and some buy 4 who came for only a section. There was only one year when the crop more than filled it.

BEES HIVED FROM A SKYLIGHT
After unpacking supers of honey in the back room of the store, four miles from the apiary, we had a collection of homeless bees from 60 hives (more or less) that accumulated on an overhead skylight. Rather than lose them a hive with a division in the center, filled with combs of honey, was prepared, the bees were taken down and divided into two lots, and a spare queen given to each. This hive was set a foot from a window, having a hole in the glass, with a stick running up to the hive. The bees climb the same path, and divide to their respective sides, and are now as lively as any bees.

Evansville, Ind.

W. W. VICKERY.

Number of Bees in Nuclei

Gentlemen:—Please send me the following information: What is the weight of and number of bees in a one-frame and also a three-frame nucleus? In a pound package of bees how many are there, measured in bulk?

T. J. JACKSON.

El Dorado Springs, Mo., May 6.

[A one-frame nucleus contains about one-third of a pound of bees and about two-thirds of a frame of brood. A three-frame nucleus contains a little over a pound of bees and three frames of brood partly filled. The number of bees and amount of brood will vary. Sometimes there will be more brood in proportion to the number of bees, and other times more bees in proportion to the brood. A pound of bees will approximate about 4500, which would a little more than fill a quart measure.—ED.]

honey my harness breeching gave way, the load striking the horse, which got away. In falling under part of the load, I got my back partly broken. This was the last part of August, and I have never stooped or lifted since, and never will, likely. After 35 years of steady beekeeping and working up a honey market, and a home trade which will take 10,000 lbs. of honey from our house, I am forced to give up. My honey trade and good will are worth \$1000 cash, for which I shall never get a cent. My conscience has dogged me every week since I got hurt, to warn others. Every wagon used for bees or honey should have *brakes* on. I have never yet put a pound of honey on the market nor advertised or sold on commission. My trade is never filled.

CHARLES MITCHELL.

Molesworth, Ont., Canada, June 10.

Space Above and Below in the Shipment of Bees

We note your instructions in June 1st issue of *GLEANINGS* for shipping bees, which are good so far as they go; but I think that full colonies ought to have 1½-inch space underneath bottom-bars, and 2 inches above the brood-frames for clustering, and something across the top to prevent piling up, so as to shut off the air. No old field bees nor bees having the swarming fever ought to be nailed up. We recently received a bunch from the South practically all dead; not a good frame of brood in the bunch; enough bees for perhaps two nuclei. Express charges were \$30.75. The whole thing can be considered a total loss. I believe a comb of water ought to be added.

Bellevue, O., June 5.

H. G. QUIRIN.

[Your suggestions to have a space above the bees and below them are entirely in order, and we may say that in both carloads of bees that we shipped from the South to the North we had such space. There was also protection above the top of the screen. We thank you for calling attention to this matter, as it is very important to have these precautions observed.—ED.]

Hybrids Stood the Cold Weather Better than the Italians

Out of 210 colonies in ten-frame double-walled hives in Fairfield and Litchfield counties, I lost through the winter and spring 20. Of these, 16 were Italian, of which 6 were from Miller, in Pennsylvania; 6 from Doolittle; and 11 from George E. Hilton. I lost every one of the Italian colonies before March 1, on full combs of honey. They were frozen to death or killed by dysentery. We had three months of zero weather, with no cleansing flights.

Out of the 194 hybrids (half black) I lost 4 from starvation through April. The Italian colonies were in the same row as the hybrids.

Danbury, Ct., May 23.

JOHN NICKERSON.

[Were the Italians goldens or leather-colored?—ED.]

Our Homes

A. I. ROOT

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.—ISA. 40:31.

Cast me not off in the time of old age; forsake me not when my strength faileth.—PSALM 71:9.

I am starting out, as I have told you several times, to try to live to be a hundred years old. How can I manage it? What shall I do, and what shall I cease doing? Mrs. Root said she had very little desire to be a hundred years old; but when some of the children reminded her that she could probably aid in prolonging my life better than any one else in the world, she added, "With that view of the case I would try hard to live to a good old age."* You see she takes an unselfish view of the matter. Well, friends, I too am trying to take an unselfish view of the matter. I not only want to live to see what is going on in the years to come, but I want *others* to live to a good old age. Mrs. Root has often reminded me that people who live to be up to ninety years or more are usually not only a burden to themselves but oftentimes they seem to be, at least in some respects, a burden on the rest of the world. Now, I think this need not be so. Our good friend Terry insists quite vehemently that it need not be. He too is trying to come up to the hundred mark; and he and I both have been for years trying to teach humanity how to "keep well and live long." One reason why I want to live as long as God's will is that I should live, is that I may see what is being accomplished in this line by our good men and women of this twentieth century.†

May God be praised for the assistance our Department of Agriculture is giving. In my hands are some recent bulletins sent

out by the Department. The titles are as follows: "How to Prevent Typhoid Fever;" "Tuberculosis;" "Facts about Malaria;" "Remedies against Mosquitoes;" "House-flies;" "Harmfulness of Headache Mixtures;" "Poisonous Mushrooms;" etc. These bulletins have all been sent out within the past year or two. There is just one more—"Habit-forming Agents—Their Sale and Use a Menace to the Public Welfare." A lady who gave an open-air address on our public square spoke about the recent legislation or ordinances against impure or deleterious milk. She said the number of babies that lost their lives in Cleveland, every summer, through the use of milk not fit for use was *greater* than the number of people lost on the Titanic. May God be praised for what has been done to save the *babies*; and I hardly need tell you that the mothers of these same babies have had much to do in securing this very just and wise legislation. This pamphlet about habit-forming agents informs us that the babies, through the agency of ignorant mothers, get an appetite for stimulants in soothing syrups, for instance, and things along that line. Later on, different things are put on the market, just to get the pennies from children so young that we might almost call them babies. The climax of this terrible work (just for the sake of the nickels and pennies) is the cigarette business. In the last number of that periodical called *Good Health* we find the following:

Not fewer than 10,000 persons die annually of chronic poisoning with alcohol and tobacco—six times as many as went down with the Titanic.

Well, this government bulletin on habit-forming agents does not *mention* cigarettes, scarcely mentions tobacco, and has not a word to say about beer and other *intoxicating* drinks, although it does have considerable to say in regard to opium, morphine, etc. As a rule it rejoices my heart when I get hold of these government bulletins, especially the reports from our experiment stations. By the way, our Ohio Experiment Station at Wooster is said to be doing a greater work, or at least a *better* work, than perhaps any other similar institution in any of the States. May God be praised for this. I have, however, a report in my hand just now from our Wooster station that did *not* "rejoice my heart" when I saw it. It is entitled "Tobacco Culture in Ohio." I asked the question recently through our journal if the people of Ohio generally

* Mrs. Root not only knows better than anybody else in the world what sort of food agrees with me best, but she knows better how to prepare it. She is also prompting me more or less every day of my life in regard to health measures. Wherever we are she makes provision for my naps before dinner, and exhorts me every little while to straighten up, throw back my shoulders, and expand my lungs. I hardly need remind you that she is almost fierce in this matter of pure air and abundant ventilation. Very likely I should not be alive and dictating these Home papers at this moment were it not for my untiring and indefatigable helpmate.

† I not only want to see what is going to be done in regard to sanitation, pure food, fresh air, etc., but I want to see the outcome of wireless telegraphy, flying-machines, electricity, and radium. By the way, my radium "*still radiates*." The little specimen I have, although it has for years been pouring forth a literal "bombardment of shooting stars," is at it *still*, winter and summer, week days and Sunday. I also want to see those "that wait upon the Lord" "*inherit the earth*."

felt that it was a wise thing to do to have our Experiment Station teach our Ohio boys "how to *grow tobacco*." I am glad to know that at least a few of the professors at our Wooster station are not in favor of experiments in growing tobacco, and, as a consequence, it is not grown on the grounds at Wooster, but at a sub-station in the southern part of Ohio. In a communication from the director of our station, just received, he said something like this: "Mr. Root, while the men of Ohio, two out of three, if not four out of five, are tobacco-users, what else can we expect than that tobacco culture will be taught?"

Now, friends, I think you can get a glimpse of the reason why I have been for long years praying that the mothers of Ohio might speedily have a chance to vote on questions where they are more deeply interested, and where their judgment is better and wiser than that of the *fathers* of our land, as a rule. A very young boy was recently found smoking cigarettes; but when a good lady remonstrated he replied, "My pa smokes too;" and as long as his pa continued to smoke a cigar, it would be hard to persuade the young urchin that it is not the thing to do. Our Department of Agriculture has been sending out bulletins in regard to the different kinds of food. One recently in my hands was in regard to "Fish, Its Healthfulness, etc." Now, why shouldn't we have a bulletin reading something like this? "Beer and Similar Intoxicating Drinks; Their Effects on the Health and Morals at Large?" Then Uncle Sam might give us another bulletin: "Tobacco—Its Probable Effect, Physical, Mental, and Moral, on the People of the Land."* Why do we not have such bulletins? Because the Great American Tobacco Company would not like it. They have got somebody stationed near the head of our government who is continually opposing any "fanatical" attempt along this line; and it is the same way with the rum traffic. Not one mentioned for the presidency has dared to say a word about this. Please notice I use the word "dared," for not one has even so much as dared to *mention* the drink traffic. Have you ever found in the voluminous "Presidential messages" any mention, rec-

ognition, or reference, to this "Great Destroyer"? If the women had a chance to vote, do you think this would continue? Surely not. May God be praised for the good and wise women who would save us from a multitude of ills and disasters if they were only permitted to have a chance. I am now hoping and praying that that time will soon come. Perhaps the dawn is just now before us, when we may see a President who fears God but does not fear the rum power—who will not hesitate about attacking what Hobson called "the great destroyer," in his bold speech in Congress.

Now just a word in closing, in regard to our texts. Obedience to God's commands will not only give us as a nation and as a people longer life, but it will give us the ability to enjoy life; to be more *alive*, and to have life "more abundantly," as expressed in our text. The *Scientific American* is not a religious paper. Sometimes I have thought when they were discussing every thing pertaining to human life and health, and yet carefully avoided any mention or allusion to the rum traffic, that they were quite a good way off from temperance and Christianity—that is, one phase of Christianity. Yet I was pleased to note their answer in their question department where a subscriber asked, "Where is the healthiest place on earth?" Let me explain that the *Scientific American* has been for 60 years, to my knowledge, answering all sorts of questions. No matter how ridiculous, the questioner gets some sort of answer; and in order to save time and space, some of the answers are very brief, and sometimes one might think rather abrupt. Well, they replied to the good brother who wanted to know where the healthiest place on earth is, something like this: "The healthiest place to live is where there are the most churches and church-going people."

The good brother was vexed at such a turn of affairs, and asked in the next issue if the querist editor was such an ass as to believe that the *churches* had any thing to do with physical health. The *Scientific American* came back at him by replying that people who observe God's laws would, as a rule, keep the laws of man; and that law-abiding citizens are, as a rule, a healthier lot of people than those who trample law under foot.

The last of our texts has been to me a comfort, especially as I was approaching old age. Physical strength, energy, and enthusiasm, are great blessings; and when they come to me, as they have been coming for the last few months, I praise God for them more than for almost any thing else.

* Not many years ago one of our Medina citizens, a man highly esteemed, got up in prayer-meeting, and confessed that he had been going blind; but when he cut off his tobacco his blindness disappeared. He broke off, and then commenced its use again, until he decided beyond question that the use of tobacco, and that *alone*, was making him blind, and nothing else; and yet that bulletin of toward a hundred pages, from our Ohio Experiment Station, has not a single sentence that even touches on the matter that the influence of tobacco-using has on the health.

A few days ago I was in a hurry, as I wanted to catch somebody before he got out of sight. I started off on a run, a good deal as I used to do when a boy. I caught my man, delivered my message, and commenced to walk back deliberately. Some old farmer on a wagon (I do not know who he was) said, "Mr. Root, it rejoices my heart to see you able, at your age, to start up like that and run like a boy." I told him it rejoiced my heart too, every day, and I was thanking God for it; and I hope that the beautiful text may induce a lot of my old friends to have more faith in Bible promises, to strive harder to obey God's laws, and to hold on to physical strength as long as possible. We must not let the idea get hold of us that we are getting past usefulness. Good sense, aside from Bible teaching, should prompt us to eat sparingly and to be sure to take plenty of physical exercise in the open air every day of our lives, whether we feel like it or not. The old saying,

Satan finds some mischief still
For idle hands to do,

will apply right here to elderly people who are liable to get the idea that they are too old to do some useful work, or that they do not need to work any longer, etc. That beautiful promise, that we shall "run and not be weary, and walk, and not faint," is not to people who sit still and do nothing, even if they are growing old.

SUNDAY EXCURSIONS, ETC.

I presume the great wide world, or at least a great part of it, will continue to laugh and make fun of me because I persist in believing that God's wrath falls on those who forget to "remember the sabbath day to keep it holy." During a Sunday excursion at Buffalo, on June 23, so many people piled on a wharf where the steamer stopped that the whole structure went down in twelve feet of water. I want to give you a newspaper heading clipped from the *Cleveland Plain Dealer*:

BELIEVE 40 DEAD IN NIAGARA CRASH; SEARCHERS
RECOVER SEVENTEEN BODIES WHERE DOCK
COLLAPSED; PARK EMPLOYEES REFUSE TO
AID RESCUERS, AND DRUNKEN MEN
HINDER

Now read the following paragraph:

EMPLOYEES REFUSE TO AID.

There was considerable disorder at Eagle Park after the accident. Employees of the place refused to lend any aid to Dr. Stocker, the deputy medical examiner, in his efforts to recover bodies, and his investigations were hampered by drunken men. No representative of the sheriff appeared, and Dr. Stocker finally ordered all the bodies sent to Buffalo as rapidly as they were recovered.

From the above it would seem that the physician, when he arrived, was hampered

by the drunken crowds—too drunk to care whether anybody lived or died. A list of those who lost their lives is significant from the fact that about nine out of ten of them were women. It has been frequently commented on that the women far outnumber the men in most of our churches; but may God forbid that the women shall outnumber the men in *Sunday excursions*. Perhaps one explanation of this state of affairs is that, unlike the Titanic tragedy, the men here took care of themselves, and let the women struggle and die.

By the way, there are just now several reports of women being drowned because the new-fashioned hobble skirt would not permit them to make a rational effort to save themselves. In fact, a young woman who was an expert swimmer has just lost her life in our nearby Chippewa Lake because she was so hampered by her modern skirt which prevented her from using her limbs at all. Of course, as a rational reason for the loss of life on this and every other Sunday catastrophe, the crowd who had no regard for the sabbath was composed largely of a class like those described in the clipping; and it is a risky thing for both life and limb (to say nothing of morals) to be found in such a crowd.

If you think I am "superstitious" in insisting that more accidents happen on Sunday than on week days, read the following, clipped from the *Cleveland Plain Dealer* of July 2:

Judging by the number of fatal accidents that occur on the first day of the week, a safe and sane Sunday is strongly demanded.

This is not the first time the *Plain Dealer* has uttered similar sentiments, especially after a long list of accidents and fatalities *Sunday after Sunday*.

Later.—Since the above was taken from the daily papers, I learn from a periodical published near the scene of the accident that the number of lives lost was about 40, many of them having been swept by the rapid current over the falls before there was a chance for rescue.

SHALL WE PUT TO DEATH THE INTOXICATED
MAN WHO COMMITS MURDER, AND AL-
LOW THE MAN WHO SOLD HIM THE

DRINK TO GO SCOT FREE?

The following letter has presented the matter of capital punishment to me, at least, in a new light. Read it:

Vengeance is mine; I will repay, saith the Lord.
—ROMANS 12:19.

A. J. Root.—Referring to the article in *GLAD-
INGS*, page 119, I doubt not that the paramount ob-
ject of our lives is that we may so live as to become
promoters of the Redeemer's kingdom among men,
and that we alike deplore the depravity and unre-

generate state of very many of our countrymen. That good, industrious, and useful citizens must and do fall at the hands of lawless and wicked men brings a deep and heartfelt lamentation, not only from each of us, as of one man, but also from every law-abiding and peace-loving citizen our country over. Again, we are as one in our belief that, behind this and almost every other form of vice, crime, and misery, stands that monster of evil, the American saloon—the blight of our nation and parent of nine-tenths of the poverty, wretchedness, and woe that pervade so many hearts and homes. Of the truth of this I am fully persuaded; yet from the introduction of the article from the *Chicago Advance* there is room for the inference that we as Christian believers have been somewhat differently impressed by parts of the New Testament teachings. Now listen: The people of this great nation tolerate laws which license a certain class to dispense to our sons—the young men of our fair land who ought to be the pride of our homes—this poison which debauches, debases, and ruins both the bodies and the souls of these children of fair promise. Now, as this infamous business progresses toward its culmination, where every passion has been inflamed to its utmost; when some heart-rending blood-chilling deed has been perpetrated, then it is that this same people again assert themselves with another law; and in effect they say, "Now hand over to us this poor unfortunate culprit who fell under this snare of his soul's enemy; we will cap the climax by taking away his life, and dropping him out of time—consigning his poor sin-laden soul, not to the fellowship of the saints but to an inheritance among those of whom it is declared they have no part in the kingdom of heaven." Now, what have we accomplished? We have not restored to the bosom of his family the one so brutally murdered. We have conferred no dowry on the widow and her children, nor have we in any degree mitigated their sorrows, but we have made an exhibition of a spirit, not of him who, in the agonizing hour, prayed, "Father, forgive them, they know not what they do," and who said, "If thy brother trespass against thee, rebuke him" (not kill him); "and if he repent,

forgive him." May you and I, dear friend, stand as with our armor on, contending for the right; may we, under the divine blessing, be made instrumental in hastening the coming of that time when "the knowledge of the Lord shall fill the earth as the waters cover the sea." But let us not assume that prerogative which belongs to God alone. No, brother, we who "can not make one hair white or black" may not take away the life we can not restore. We will "rebuke" them, not kill them. But detain them in solitude and servitude till that time when infinite goodness shall sever the tender thread and consign to such place as unalterable wisdom shall decree. Then will our hands be clear of the blood of all men; time will have been given for repentance and forgiveness, if such be yet possible.

Much might be said regarding the evils resulting from executions; but such is not the purpose at this time. Suffice it to say, men whose passions have been so inflamed pay little heed to the punishment that may follow, and perhaps it may be more the certainty of its infliction than its character that deters.

Barnesville, O.

THOMAS DEWEES.

I confess the above has given me a new suggestion. On the impulse of the moment I would say no. Do not put to death any more men who commit murder under the influence of drink; but if anybody is to be electrocuted, let it be the man who *sold* the drink. I have asked the question whether there are fewer or more murders where capital punishment has been abolished in the different States of the Union; but I have not yet seen a conclusive answer. I wish to thank our good brother for his able letter that, without question, was inspired by the spirit of the Master.

Poultry Department

NATURAL-HEN INCUBATORS; HOW TO GET GOOD-SIZED DUCK EGGS, ETC.

My Dear Mr. Root:—In GLEANINGS for June 15 I find the poultry department unusually valuable, not because of the quantity of the matter you use, but the quality of it. That ancient but profitable fraud, the "natural-hen" incubator is treated in exactly the right manner. I wrote an article at least twenty years ago describing exactly the same thing, and I got my plans from some one I had seen in my travels, I now forget where. If there is any patent on such arrangement it is on some insignificant detail that adds nothing to the effectiveness of it.

The longer I keep Indian Runner ducks the better I like them. Have you noticed that they are about the most intelligent of all our fowls? Mine are allowed to run at will, during the time they are out of their yard, in the irrigating ditches on the ranch. They frequently go to the further limits of the place; but at any time in the day if I go out and call them, and they hear me, the ducks answer; and in a few minutes they come as fast as they can for the house. I invariably give them something to eat when they get home. At night they always come up; and when I go out to the yards they stand around and "talk" to me and follow at my heels until I give them their regular night feed. They go into their yard and stay there contentedly until they are released the next day. They are ravenous eaters when confined; but when they have the run of the ditches they do not eat overmuch. Mine prefer a mixture of bran and shorts with beef scrap added. I can stop them from laying in a week by cutting down their feed and reducing the size of their eggs by underfeeding. So far as hatching in an incubator is concerned, I will say that I have just had a hatch come off that satisfied me very well. I had 62 eggs in the incubator, and every egg but three start-

ed to hatch. They went along all right until a week before they were due to hatch, when I filled the lamp, turned the flame up rather high, and *forgot it!* I also forgot to close the cellar door which opens to the east, and the morning sun shone directly in on the incubator. I went out to see about a field that was being irrigated, got busy with a flood of water, and never once thought of the incubator until noon. Then I found the temperature 110 degrees, and said to myself those ducks were cooked, sure. However, I did not give them up, but let the machine run its course. The ducks began hatching the 26th day, and by the end of the 27th I had 36 ducklings, 34 of which were all right. One was a cripple, and I killed it; and the other was weak, and died before a day old. The others are in fine condition now. I examined the eggs that did not hatch, and found three infertile and the remainder with ducks dead in the shell, apparently having died about the time I ran the temperature up on them. As a rule my poultry gets my first attention; but when an irrigating ditch breaks, the results may be serious if the break is not attended to at once. I have very good reasons for believing that a good incubator, supplied with an abundance of moisture from the beginning, will beat a hen or duck as a duck-hatcher.

The cause of blood-streaked eggs is usually overfatness, which weakens the blood-vessels of the ovaries, and they break, exuding a drop or two of blood which follows the yolk down the egg-passage, and becomes incorporated with the white as it is formed. The "bloody piles" described is prolapsus, caused by weakness in the muscles on the egg-passage. Hens in which this condition appears should be killed.

Peotone, Ill., June 22.

MILLER PURVIS.

We are very glad indeed to get the above indorsement, both on the incubator and the

way to get big duck eggs, etc. If a three or four pound duck is going to produce a good-sized egg every day, and, in extreme cases, *two* in a day, good common sense teaches that she must have an abundance of the very best and most nutritious food; and I for one can not see why ducks during the night may not have easy access to all the corn they can consume. To head off the rats and other animals, put their supplies of corn under water each night as they are shut up. Where they have the run of a stream of water, as ours do, the beef scrap is not needed, and the bran and shorts ration can not well be given liberally without danger of rats. Besides, there is no better egg and meat than "corn-fed" eggs or meat. I am glad to have friend Purvis tell us something about his mishaps as well as his successes. His closing sentence indicates there are two kinds of blood-streaked eggs—blood on the inside of the egg, and blood streaks on the shell. The latter can be washed off, but it is some trouble.

BLOOD-STAINED EGGS, ETC.

Mr. Root:—C. F. Childs, in your last number, page 392, speaking of blood-stained eggs, asks for a remedy. A while back, when I had quite a few hens, I had the same trouble, and talked with a poultryman about it. I followed his advice, and in a week or so had no more trouble. Like Mr. Root I can not say whether this would be considered "according to Hoyle."

In the drinking water I put old nails, or, rather, in another dish, and mixed the water I gave them with this iron solution. Tincture of iron probably would be as good or perhaps better. The iron rust has a tendency to strengthen the egg receptacle, and generally giving tone to all the hens in other ways—at least no harm can be done, and it is a good tonic for man or beast. I like a little of it myself.

Cleveland, O.

R. V. MURRAY.

As all of our poultry-yards in Florida are supplied with water through common iron pipes, I can hardly think there is any lack of iron. In fact, when the water comes through the iron pipes, drop by drop, a sort of iron rust accumulates more or less in the drinking-vessels. I notice by some of the poultry journals that mention is made of blood streaks *inside* of the egg. I have never had any thing of the sort. It is blood streaked on the outside that we have been considering, if I am correct.

FLORIDA IN THE SUMMER TIME, ETC.; THE INDIAN RUNNER DUCKS UP TO DATE.

Mr. A. I. Root:—The ducks are doing finely, except one, which was injured by a dog about ten days ago. When I got to the yard where the 26 should have been, about 8 in the morning, I found only two there. I went down to the lower gate and found a dog in the creek after the ducks. The dog was with Mr. R. Knight's cattle, which he was in the habit of following. I went around by the bridge and drove him and the cattle away, and sent Herbert to see Mr. Knight, who promised to take care of the dog; but I am afraid the duck will die. I have caught quite a number of late, and one skunk. The day before the skunk finished up those little chicks I tried to find a trap, but failed. After the

chicks were all dead I found a trap in your tool-house, and set it in the coop with the dead chicks. About nine o'clock that night the whole neighborhood knew that a skunk was in trouble. Raymond put him out of his misery with a charge of shot next morning. Since you left, the three old ducks have laid in 52 days 114 eggs, and one of the 11 young ones began to lay May 22, and has laid four to eight eggs a week since, about the size of a small hen's egg.

The ducks have not been out in the stream for a week, on account of the heavy rain that has converted the stream into a raging torrent. A week ago the ducks would not try to cross the water to get into their yards, so Reginald had to get into the water and drive them up two or three rods above, and then rush them into the water. After several failures he succeeded in getting them all across. The next day the water was nearly knee deep on the bank, and washed over the fences, crowding them over so that there was danger of the ducks being washed off into the torrent. I tied the fences with cord to the opposite side, and have kept them all in so far. There is no danger of their going into the flood willingly. They are afraid of it.

The rain began on the first, and continued until the 11th, most of the time very heavy. Sixteen inches fell in that time. The ducks now get nothing from the water, so I do not expect them to lay many eggs until they can get out again. I was afraid the fiddlers would be carried away by the torrent, but the other day, at low tide, I saw a little *lank o. sand*, a few square feet, covered by thousands of them.

That old duck of yours wanted to sit about three weeks ago, and when Reginald turned the door of her box to the fence she sat on the sand, so we turned her into the water and shut her out, two days, and she gave up and began to lay again in ten days. People who have lived here 30 years say they never saw such a rain before. As a result of the unusual rain fall, the bridge is a wreck, and the road between here and Manistee Ave. is impassable, so teams have to be driven west to Sarasota Ave., and then north to Manatee. But we are to have a steel bridge soon.

C. A. MORGAN.

Later, June 19.—The duck recovered. The old ones are laying about the same; young one also; four to-day; weather fine ever since our 22-inch rain.

C. A. MORGAN.

Bradentown, Fla., June 12.

THE FLORIDA EVERGLADES; A BRIEF REPORT FROM A VISITOR THERE.

Mr. A. I. Root:—On the occasion of my visit to Bradentown in March you expressed a desire to know what I thought of the Everglades after seeing them. Last month my friend Mr. Everett and myself made a trip across the State in a small launch. We were 16 days on the trip.

Leaving here May 8 we ascended the Caloosahatchee River to Lake Hiopchee, then across it through three miles by canal, across Lake Okechobee, to the hotel at the mouth of the south (Miami) canal. We had had an accident, breaking our propeller shaft. The only place to get any repairs was at a dredge, so we went 16 miles down the south canal to the dredge Hiopchee. However, this gave us a chance to see the country.

The soil is deep muck, pure black. We stopped at Mr. Bryant's place, five miles out. He had several kinds of vegetables growing—beans, sweet potatoes, and strawberries. But his sugarcane seemed to make the most remarkable growth. No fertilizer was used.

At the Callahan place, on the south shore of the lake, quite extensive experiments have been made. He had a nursery of grape fruit and orange trees, bananas, vegetables, red clover, alfalfa, rhodes grass, etc. They looked healthy and thrifty.

It is 64 miles from the lake to Fort Lauderdale. For perhaps half a mile from the lake the custard apple thrives. Beyond this, for perhaps 30 miles, one can see nothing but sawgrass. Of course, it appears absolutely level. Two dredges and the drill boat are working above the dam, and a suction dredge below. The dam is 28 miles from Ft. Lauderdale.

The glades are being cultivated along the canals about 6 miles out on the north, and 14 miles on the south canal.

The colony at Zona, on the South Lauderdale canal, appears prosperous. They have a canning fac-

tory to care for surplus fruit. Large quantities of beans, tomatoes, potatoes, and celery were shipped this season.

We were up the Miami canal several miles. There is not much doing there yet.

And now for my conclusions. The land is rich.

It will be drained. It will require fertilizer for best results for some crops, because deficient in certain elements. Its drainage is a big job, and will require some time yet. It is not all surveyed. The water is healthful for drinking, but tastes a little of the soil.
Olga, Fla., June 21. WM. SNYDER.

Temperance

OUR CHURCHES AND THE LIQUOR TRAFFIC.

I have already had something to say about the efforts of the Baptist Brotherhood of Cleveland (God bless them) in their efforts to have law enforced in regard to having saloons closed on Sunday. I am glad to know that the Congregational Brotherhood not only endorses the Baptist movement but are doing something themselves along that line. See the following:

"We are in the fight against saloons keeping open on Sunday to stay," said W. H. Whitney, president of the Congregational Brotherhood, in an address last night at the East Madison Avenue Congregational Church.

A civic committee composed of members from brotherhoods of different denominations is prosecuting violators of the Sunday-closing law.

"Obedience to the law must prevail in Cleveland," said Whitney. "The city won't help us. People must realize that law is more important than success in any political party. The laymen must help in the work, and not leave it all to the ministers."

And finally I said, "May God be praised" when I saw the following heading in the Cleveland Press for May 3:

PRESIDENT IS ASSAILED BY METHODISTS; GENERAL CONFERENCE DENOUNCES TAFT BECAUSE HE DID NOT PREVENT WILSON'S ACTING AS BREWERS' CHAIRMAN.

May the Lord also be praised for the following resolutions which, we are told, were adopted amid cheers:

Whereas the President of the United States, the Secretary of Agriculture, and the Secretary of State, his authorized representatives, were petitioned by the millions of Christian people of the nation, individually and through their respective representatives, to desist from all national indorsement of said brewers' congress, and that the Secretary of Agriculture decline said position of honorary chairman because of the indorsement such position would give to the business represented, and the evident purpose in view by said meeting, viz., to increase and extend the sales of beer and thus encourage the increase of drunkenness; and

Whereas the said United States authorities utterly disregarded the expressed wish and prayer of the Christian manhood and womanhood of the nation, with the exception that the Secretary of Agriculture sent out in reply a most frivolous, fallacious, and stereotyped excuse; and

Whereas the reply is an insult to the intelligence of Christian people, inasmuch as the writer must have known that the sole and only purpose said congress had in view was to secure the seal and approval of the United States authorities to their part in the beverage-liquor traffic, which is the greatest curse and blight to the nation;

Therefore, be it resolved by the general conference of the Methodist Episcopal Church, in conference assembled, that, while we pledge ourselves to remain loyal citizens of the United States, and to support those in authority in every laudable, lawful, and legal way, we do hereby announce as our conviction that in so aiding the beverage-liquor traffic by their persistent endorsement of the said brewers' congress in the face of our most earnest protest, those in authority have forfeited all claim and future franchise of the Christian and sober manhood of the nation.

God grant that every other Christian denomination may unite with the Methodists and indorse the resolutions as above.

"PREVENTION BETTER THAN CURE."

I have had considerable to say on this subject of late; but the following, clipped from the *American Issue*, pointedly directs our attention to a fearful thing that is going on and on in our United States of America, and for that matter, more or less, in the whole wide world. Read it and see if you do not agree.

VOICE OF THE LAND. WHY NOT REMOVE THE CAUSE?

New York is spending hundreds of thousands of dollars for a sanitarium for inebriates. Agitation is on for similar institutions in Pennsylvania and other States. At the same time, commonwealths are spending vast sums in reform farms, penitentiaries, and other penal institutions. But why not prevent crime instead of punishing it? Why not devote time, money, and energy to keep the youth from becoming criminals rather than in taking care of them after they become criminals? Why not remove the cause rather than continue to burden taxpayers with the effect? Why not grow good citizens instead of bad ones?

Now, the saddest part of the above is that not one of the candidates for the presidency of the United States—that is, one with any prospect of election—dares open his mouth in regard to recommending prevention as being better than cure. In other words, we have not had a president's message for many a year, if I am correct, where he even touched upon the question as to whether the *prince of all evils*, that afflicts all nations, shall continue his reign or not. I am watching and praying for the time to come speedily when all good men and women will rise up in their might and demand a president who fears God, but does not fear the liquor power.

LAW ENFORCEMENT WHERE IT STRIKES THE LIQUOR DEALERS.

I clip the following from the *Cleveland Plain Dealer*:

Another obstacle in their campaign against the saloons of Cleveland was encountered by the Baptist brotherhood yesterday afternoon when Chief Prosecutor McKay, of municipal court, flatly refused to issue warrants against two saloonkeepers who, the Baptists said, had violated the Sunday closing law.

Attorney John A. Chamberlain, of the brotherhood, applied for the warrants. He presented affidavits purporting to show that the two saloons in question had been open on Sunday.

In refusing issue McKay told Chamberlain that, if every request for a warrant was granted, half the

population of Cleveland would be in jail most of the time.

The "chief prosecutor" says, in other words, if a warrant was granted for every trifling(?) offense, like *keeping a saloon open all day Sunday*, "half the population of Cleveland would be in jail most of the time." I think I recognize Roosevelt's good qualities, and I believe he is strong on "law enforcement;" but when I vote for a President again, God helping me, I will try to vote for a man who has the courage to insist on law enforcement, even when it runs up against the brewers and distillers with their millions. May God bless, guide, and sustain the Baptist Brotherhood, and may all other denominations fall in line, and back them up.

THE RISE AND FALL OF NATIONS.

On page 64, Jan. 15, I asked the question, "Why can we not have Hobson for President?" Now to-day a printed speech delivered by him in the House of Representatives, Feb. 2, has just been put into my hands. The speech occupies 16 pages. From the first page I quote as follows:

ALCOHOL IN HISTORY.

History is a record of a sad procession of world tragedies. Nations and empires in turn have risen to greatness only to fall. Before the deathblow was struck from without, the evidence shows in every case the ravages of a titanic destroyer within, under whose operations the vitality and strength of the nation were submerged in a general degeneracy.

For centuries the world's philosophers and historians have looked on appalled, overwhelmed. Only in the last few years has science taken up the question. Following her patient, rigid methods, under which nature and life have slowly yielded up their secrets, science has at last cleared up the mystery and identified the great destroyer as alcoholic poisoning.

If you think the above is extreme, read the pages that follow. Now let me quote another extract from the last page:

THE SPIRIT OF THE MEN.

The enemy by ruse attempts to shake the spirits of our forces by saying, "Prohibition does not prohibit." Let us not only show up how it does already prohibit to a marked degree, but let us realize that getting prohibition is but part of our war. The second part is its enforcement. Let us turn the whole power of our organization throughout prohibition territory into such complete enforcement that all the world must see. Shrewd word is also passed along our ranks, especially to the worrying, that "Prohibition can not prohibit." Let us fling this back in the teeth of the enemy. It is nothing less than a boast that the nation is already lost. Let us put it before our ranks as the cry of pirates who have boarded the ship of state, and with jeers are trying to hoist the black flag, with its skull and crossbones, above the Stars and Stripes.

Let me quote from the above. The oft-repeated expression, "Prohibition does not prohibit," is really, as Hobson says, "a boast that the nation is already lost." When you hear anybody say again that prohibition can not prohibit and prohibition can not prohibit, consider that this means virtually to say that our just and righteous laws can not be enforced. That is what the mav-

or of Cleveland said in regard to shutting up the saloons there on Sunday. If that is true, our nation is already lost. And, dear friends, the responsibility rests on you and me to say that our just and righteous laws shall be enforced.

"RATTLESNAKES"—SHALL THEY BE TOLERATED IN OUR HOMES?

My daughter, who is a teacher in the public schools here, came to me and handed me a list price requesting me to send for the *Review of Reviews* for her. I looked up an advertisement I had seen, offering to send this and two others, *Success* and the *American*. I think it was, for about the price of the *Review*. I took all three. When they came I found two of the trio were carrying liquor advertising.

Now, Mr. Root, I should like to have you believe me when I tell you I had rather see a man offering rattlesnakes for sale than to offer liquor, as but few persons would be bitten by the snakes, as they understand the deadly character of such reptiles; but as to the "snake of the still," alas! there are too many who are deceived thereby.

Can not GLEANINGS give us a black list of all magazines and farm papers that carry these whisky advertisements, so that the unwary, like myself, need not be trapped into subscribing to such papers? I do not even want them to come into my home. Possibly you would not like to make up and publish a black list. Well, you could make up a white list of those like GLEANINGS, *Practical Farmer*, etc., that set their faces against furthering the well-being of any periodical that will help the Devil in such work.

If you can not give us a long list at once, give us a small one, and add to it as you become better posted. Send a copy of such list to other publications that you have reason to believe would be glad to publish it. This move would not amount to much at once, but it would soon bring about a line up that would soon compel every journal to show itself on one side of the fence or the other.

To put the matter plainly, there is now no means for a person in the country to ascertain the standing of any paper on the temperance question without investing blindly, and then getting something he would be ashamed to have a Christian person see in his home.

Ozark, Mo., Dec. 4.

S. S. LAWING.

TOBACCO-GROWING IN OHIO.

After what I said in regard to the above in our issue for June 15, I submitted the matter to my good friend the director of the Ohio Experiment Station. Below is his reply:

..Mr. A. I. Root:—You can not be too emphatic in condemning the wastefulness of the tobacco habit; but the facts remain that at least two men out of three, probably four out of five, are users of tobacco, and that the production of tobacco is recognized by custom and by law as being as legitimate a branch of agriculture as the production of corn or wheat.

As long as this is the condition of public sentiment, an institution supported by the State, and conducted for the benefit of the agriculture of the State as a whole, can not refuse to consider the production of tobacco, merely on the ground of personal detestation of the use which is made of it.

CHAS. E. THORNE, Director.

Wooster, Ohio, June 18.

I think I have heard somebody say in times past that "facts are stubborn things;" and I suppose my good friend Thorne is right. But may God be praised that the number of good sound business men of established reputation, who do not use tobacco in any form whatever, is daily increas-

ing. Whatever may be said in the way of criticism, just now especially, in regard to Mr. Roosevelt, let us keep constantly in mind that he does not use tobacco in any way, and, as we are told, he probably never will. And even if what Professor Thorne says is true, as I look abroad and see what the churches, the Y. M. C. A., the Endeavor societies, the Salvation Army, etc., are doing for the youth, not only of our blessed land, but for the whole wide world, I fell like bursting forth in the words of that grand old hymn:

Hail to the brightness of Zion's glad morning;
Joy to the lands that in darkness have lain;
Hushed be the accents of sorrow and mourning—
Zion in triumph begins her glad reign.

Just here my stenographer suggests that the growing of poppies for the production of opium is not so far out of the way as an illustration. And yet "heathen China" has mown down her poppies, in spite of their "poppylarity," and has imposed a penalty for those who still persist in their cultivation that I hardly dare put in print.

TOBACCO CULTURE—SHALL IT BE TAUGHT BY OUR EXPERIMENT STATIONS TO THE YOUNG MEN OF OHIO?

After my remarks in regard to growing tobacco in Ohio, p. 390, June 15, were printed, I found the following in the *Practical Farmer*, written by our good and wise friend T. B. Terry:

Our telephone company has a board of five directors, besides secretary and treasurer. The capital employed is nearly \$30,000. Our national bank has a board of four local directors and two cashiers, and they have the care of about one quarter of a million of other people's money. Now please notice, my young friends: Every one of these officials, from presidents down, attends church. There is not one of them, so far as I know, who drinks any intoxicating liquor. There are not more than two or three, I am told, who use tobacco in any form. Although an officer in both institutions, I have never yet seen these men either smoke or chew. Would that I could give you a clear record on tobacco-using, instead of one slightly clouded. All this is told you so you can see what sort of men are called to positions of trust in our community. And you will find it is getting more and more this way the country over. Young men with sound healthy bodies and clear brains are in demand. The poisons from liquor, tobacco, and overmuch food, in a measure stupefy the brain of any man. He is not so clear-headed as he might be. A large army of young men will graduate from college or high school this year. Others, with less education, will be starting out for themselves. We earnestly beg of you all to start rightly. Don't touch any tobacco or liquor.

ENTERTAINING ANGELS UNAWARES, ETC.

Dear Mr. Root:—I have read GLEANINGS for 25 years, and found much spiritual food in it, especially in Our Homes and Temperance. But to-day, when reading page 63, I find a letter from Mr. Cohenour, that is very indigestible. I won't even swallow it. In behalf of the Scandinavian race I want to protest against it. I am one of the hundreds of

your Scandinavian readers, and I think there is not one of us, not even one in the whole Scandinavian race who deserves to be classed among Eskimos, Chinese, Hindoos, and Pecheras of South America, even if we do eat fish once in a while.

As a contrast to the "fish-eating Norwegians," Mr. Cohenour put the Americans as a superior race, living on mixed food "like birds on bugs and worms until they are grown up." I want to say frankly, if the American in any way is a superior race (it is hardly proper to call them a race) their superiority consists in living on bugs—humbugs—and worms imported from China, Japan, Hindostan, and other countries.

As to the fish-eating people of Norway, I can inform Mr. Cohenour and other ignorant Yankees that the people in Norway do not eat more fish than people do in America, proportionally. The Norwegians are not afraid of getting wet and cold, and they may fish more than the Yankees; but most of their fish are shipped to England, America, and Germany.

I have lived in Norway 30 years and in America 39 years, so I know a little more about it than this shining jewel, Mr. Cohenour. As to mental strength, I think (and every educated American knows) that the Norwegians stand on a full level with any nationality; and as to physical strength you will find a greater number of centenarians in Scandinavia than you can find in America's ninety millions; and some of them would easily come out victorious in a tug-of-war with a 70-year old humbug-eating Yankee.

Yes, I have, in the last 25 years especially, seen hundreds of occasions similar to what this German boy, Mr. Bernhard Kunz, tells us on page 29. These superior Yankees have no use for the foreign worms, if they can't squeeze dollars out of them.

Please let us all try to live up to Paul's teaching in Rom. 12:3 and elsewhere.

Tacoma, Wash., Feb. 1.

E. O. TEFFRE.

My good friend T., I humbly beg pardon for allowing the expression you refer to to get into print. We should all remember that here in the United States, "the land of the free and the home of the brave," as we are wont to call it, we are made up of *all* nationalities. We have bright boys and men who came from *all* quarters of the earth; and we should all be careful about making use of any expression that will reflect on our neighbors. Friend Cohenour used the expression he did because he was a little vexed, as I take it, because I suggested that he, with a large family, might make ends meet by living on "boiled wheat." He resents this, and declares that neither a vegetarian diet nor a meat diet will produce great men of superior education. In speaking of fish, let us remember that the great Master, when he made his banquet for his beloved followers, gave them first a fish broiled on the coals; and after that, honey in the comb. In view of this, who can think of casting a slur on a nation, the inhabitants of which use a large quantity of fish as food? Our stenographer suggests that friend Cohenour does not refer to the Norwegians as we know them, but to the inhabitants of the northern part of Scandinavia who necessarily use a large quantity of fish. He contrasted the Hindoos as vegetarians with other nations who use meat almost exclusively, in order to prove that a mixed diet is better.

Gleanings in Bee Culture

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Editorial

THE FRONT COVER PAGE OF THIS ISSUE.

The front cover page of this issue shows a characteristic apiary seen on the mountain sides in California. The picture was originally taken by Mr. W. Z. Hutchinson. The locality is apparently one of mountain sage.

HONEY PROSPECTS.

THERE is not much to add to what we have already given on page 430 of our last issue, except to say this: Reports would indicate that clover has yielded tremendously in some large areas. Michigan is beginning to show some good reports. Illinois and Indiana continue to show that the season has not been very good. Reports from California are still unfavorable. Many letters show a lack of bees to gather the crop of clover where it is yielding well, and this fact will make a slight shortage in some localities.

A FREE BEE BOOK FOR TEXAS.

THE Texas Department of Agriculture has just issued a bulletin on bees, entitled "Texas Beekeeping," by Louis H. Scholl. It is, in fact, a complete text book on the subject, for it comprises 142 pages about the size of this. We presume that all Texas beekeepers can obtain a copy free of charge. Apply to the Commissioner of Agriculture, Austin, Texas.

As nearly as we can judge from a rapid scanning of the pages here and there, the matter seems to be carefully and well written, particularly with reference to the conditions as they exist in Texas. The book is well illustrated, many of the cuts having been taken from this journal.

SOWING AND REAPING; WAITING FORTY YEARS FOR A CROP.

SOME of the old gray-headed veterans will remember the time when we got short of barrels to contain our extracted honey, and your humble servant borrowed the wash-tubs of the neighbors; and when these were all full we borrowed the wash-boilers.

Wash-day came, and the good women came around wanting their utensils. But there was no place to put the honey. Mrs. Root asked, "Oh! won't those bees *ever* stop bringing in basswood honey?" It was about ten years after the war, and new "extracted" honey was selling in Cleveland as a novelty for 25 cents per pound. I finally told "Sue" that we would pump the water out of the cistern and scrub it up nice and clean, and fill it with honey. Well, under the stimulus of this great yield of basswood and clover I scraped up money enough to purchase a ten-acre lot in which I planted 4000 basswood trees; and we have waited patiently *over forty years* to see if another such harvest from clover and basswood would come, and now we have it. Pretty close to ten tons of honey, both comb and extracted, have been taken off during the past three or four weeks. (The two carloads of bees from Florida have "paid the freight," anyway.) Praise God, from whom all blessings "flow;" and if you too, my friend, have also been getting a great "flow" of honey, can't you say amen to the above?—A. I. R.

ABSCONDING SWARMS; TRAPPING THEM BY MEANS OF DECOY HIVES, OIL OF ANISE, ETC.

AFTER the article and picture on page 482 was in press I recalled that the matter was already touched on in the A B C and X Y Z of Bee Culture, at the close of "Swarming." An instance is there mentioned of a beekeeper in California who secured 17 swarms by having his empty hives stacked up near the apiary.

In regard to the oil of anise, some years ago a fellow in the South was getting a lot of money by "selling secrets" for capturing swarms. So far as I can recall, his secret was oil of anise to attract the runaway swarms. Referring to the article on page 482, the writer says he never saw a swarm of bees until that spring; and then he states, as I understand it, that he and his

brother secured 72 swarms by putting out 75 boxes. There must have been a terrible stampede of runaway swarms just then in that section.—A. I. R.

HAVE THE QUEEN-BREEDERS OF THE COUNTRY BEEN DEFYING THE LAWS IN REFERENCE TO MAILING QUEENS?

REFERRING to the recent ruling of the Postoffice Department (see page 492), that all queen-bees sent through the mails shall have a certificate from the State inspector showing a clean bill of health, Mr. J. F. Crowder, of Pasadena, Cal., has this to say in the *California Cultivator* of July 4:

Until the postal department came to our relief, the queen-breeders paid no heed to the laws of the various States, many of which had very good ones; but owing to the leniency of the mails they had never taken the trouble to look them up, nor to see whether they were carrying on a legal business. They had been defying the law of this State for eleven years, as the law was amended in 1901, and in the editor of GLEANINGS' own State for eight years. Shipments of full hives or colonies could be made in conformity with the laws, but shipments where made through the mails were difficult to regulate until the department came to the relief.

Italics ours. A little further on, Mr. Crowder quotes what he supposes to be a copy of the Ohio foul-brood law, which the queen-breeders, including ourselves, he says, "defied." This law was repealed two years ago. It had always been a dead letter, for the reason that it did not make a proper provision for the payment of the salary and expenses of an inspector; and even if it had been operative it made no requirement that queen-bees sent by mail should have a certificate, or a copy of one, from the State inspector. But just as soon as an effective foul-brood law was passed in Ohio (and we believe the beekeepers of the State will acknowledge we had as much to do in getting it passed as any one), our apiary or apiaries where queens were reared were regularly inspected and a certificate granted. But the new law does not require a copy of the certificate to be sent out with every package of queens sent by mail, neither did the old one. We were not aware of the provision in the California law. We, therefore, do not understand why Mr. Crowder should make the charge that the queen-breeders of the country have been "defying" the laws of his State and of Ohio. The word *defy* means a willful act. If they or we were ignorant of the special provision of the California law, Mr. Crowder is grossly ignorant of the provisions of the Ohio law. Before he makes the serious charge he does, he should make sure he is quoting from the right law. It has been published in GLEANINGS as it now stands, pages 171 and 306, for 1910, and has been sent broadcast over the State.

Section 1155-7 of the new law referring to queen-breeders reads:

SECTION 1155-7. It shall be the duty of any person in the State of Ohio, who is engaged in the rearing of queen-bees for sale, to use honey in the making of candy for use in mailing-cages which has been boiled for at least thirty minutes. Any such person engaged in the rearing of queen-bees shall have his queen-rearing apiary or apiaries inspected at least twice each summer season; and on the discovery of the existence of any disease which is infectious or contagious in its nature, and injurious to bees in their egg, larval, pupal, or adult stages, said person shall at once cease to ship queen-bees from such diseased apiary until the inspector of apiaries shall declare the said apiary free from all disease. Any person engaged in the rearing of queens who violates the provisions of this section shall, on conviction thereof, be fined not less than one hundred dollars nor more than two hundred dollars.

We have always complied with the spirit and letter of both the old law and the new one, and yet Mr. Crowder says in closing:

Mr. Queenbreeder, have you been living up to the laws of these two States? I for one say no. Get right.

We join hands with Mr. Crowder in the desire to protect the industry, not only in his State, but in every State in the Union; but we think he is a little rough in his implied references, especially when he quotes the wrong law, and one that was always a dead letter.

EDUCATING BEEKEEPERS WHO DO NOT TAKE BEE JOURNALS ALONG THE LINE OF FOUL BROOD AND FOUL-BROOD INSPECTION.

REALIZING that comparatively few beekeepers see the discussions on diseases of bees in the various bee journals, and at the same time appreciating the need of education, especially in case of slipshod beekeepers, Mr. Norman Gute, of Owosso, Michigan, has had published in a local paper a series of five articles on foul brood, the titles of which are as follows:

- 1.—Contagiousness of the disease; its spread over Michigan and the United States; its ravages to bees and honey crop.
- 2.—Symptoms of the disease, and how to detect it.
- 3.—Cause of infection; precautionary measures to prevent spreading.
- 4.—Foul-brood laws of Michigan.
- 5.—The cure of foul brood.

We regard this as a step in advance, for the old-fashioned beekeepers are unquestionably the ones who spread the disease through carelessness, and it is just this class that it is hard to reach through the channel of the ordinary bee journal. We think it would be well for beekeepers in other localities to adopt this plan, where disease is spreading rapidly. The material for the articles can be taken from the various text books if necessary, or some local well-known beeman can write the articles in an interesting way. Mr. Gute is himself

a newspaper man, and he would doubtless be glad to furnish copies of the papers containing these articles to anybody who might wish them, providing stamps were sent to cover postage.

A good deal rests upon the man who writes the article. Lengthy, technical discussions will not be read by the careless beekeepers, for they are uninteresting. The article should be short and to the point, and should be written in a wideawake, interesting manner.

TEXAS AS A HONEY STATE.

THE *Texas Magazine* for May, an illustrated monthly, contains an exceptionally interesting and valuable article by William Harper Dean, Assistant State Entomologist under Prof. William Newell, State Entomologist and Chief State Foul-brood Inspector of Texas. We should like to reproduce the whole article, but space will permit us to make only a few extracts here and there that will speak for themselves.

He gapes his astonishment to learn that there are more than a quarter of a million colonies of bees in the State, and that their annual honey production is estimated to run upward of 7500 tons. *

The value of bees can in no wise be computed by the amount of wealth they create through their production of honey and wax, for without bees there would be imperfect pollination of blooms, consequently poor crops of fruit, truck, staple crops—even failures. On the enormous alfalfa ranches of R. J. Smith, "The Alfalfa King" of Texas, you will find colonies of bees, for though Mr. Smith is not a beekeeper, by profession he knows well that the little workers will pollinate the alfalfa blooms, assuring a good crop of seed and a table supplied with the choicest of sweets. * * * *

TEXAS HAS BEES ON 38,000 FARMS.

Some 38,000 farms in Texas keep bees. Many of these, the majority in fact, keep but a few colonies to fertilize the cultivated bloom and to supply honey for home consumption. There are a great many beekeepers who are professionals, relying well nigh exclusively upon their colonies as a source of income. But professional beekeeping is not a common find. Those who rise to this point do so only by the closest observation, the most painstaking methods, and good business management, as will be readily understood when one takes the trouble to investigate the depth of complex life in these little socialistic communities. * * * *

The Goliad Bee and Honey Company, of Goliad, last year operated 1050 colonies of bees which produced 42,050 pounds of honey and 300 pounds of wax. At Beeville, Mr. W. H. Laws operated 1200 colonies which stored 21,000 pounds of honey. But Mr. Laws is not primarily a honey-producer. His primary occupation is the rearing of queen bees for supplying other apiarists. At La Pryor, Zavalla County, Mr. J. E. Chambers harvested 70,000 pounds of honey and 800 pounds of wax from 1000 colonies of the little freebooters. In the light of these few instances "waste" hardly seems a fit nickname for shaparral. * * * *

BEE FACTS.

Uvalde County alone has more than 15,000 colonies of bees.

Texas honey is rarely found on the Northern markets; it is practically all consumed in the State, though some shipments are made to Oklahoma and other close points.

It is not an uncommon occurrence in Texas to see a whole car of bees shipped to some locality where a new apiary is to be started, or where the beekeeper wishes to increase his honey output without waiting for natural increase in the bees on hand. * * * *

Both Central and East Texas reap a titanic honey harvest from principally cotton and horsemint, the latter a wild, generally distributed plant which furnishes nectar for a deliciously flavored product. Here the rainfall is quite heavy, and we find the honey darker in color than that of the chaparral sections. Located in Williamson County is one of the bee and honey kings of the State, T. P. Robinson. Though he operates a considerably less number of colonies than many of his brother "kings"—800 to be specific—he took from them last season nearly thirty tons of extracted honey. His output during a good average year is about 80,000 pounds. A "bumper" crop would raise this to the neighborhood of 100,000 pounds. This man is perhaps one of the wealthiest beekeepers in the country. During the last ten years he figures a total income of \$100,000. "And," says Mr. Robinson, "I have made this wealth by creating wealth, not by trading and scalping"—a philosophy which carries with it something lasting and good for a heritage. * * * *

CONDITIONS SAME IN TWO EXTREMES.

Uvalde County is one of the greatest honey-producing counties in the State, relying principally upon huajilla, catsclaw, and mesquite—chaparral growth in semi-arid latitude. As far west as El Paso County the beekeeping industry yields abundant returns. At Clint, El Paso County, W. J. Stahmann last year managed 800 colonies. They stored a total surplus crop, over and above their own needs, of 83,000 pounds of honey and 300 pounds of wax. * * * *

SOME OF THE FAILURES AND SUCCESSSES.

A novice in the art of beekeeping started out with thirty colonies of bees. At the end of his first season he took a surplus of 3000 pounds of honey and counted 110 colonies as the result of natural increase. This man gave his bees attention and kept them in modern frame hives.

One of the best-qualified beekeepers in Texas in discussing failure and success in this calling cited an instance in which a certain acquaintance of his farmed 200 acres. He loses money on cotton and pays all his expenses from the revenue of his bees. This man's custom is to work with his colonies two hours each day when he is "resting" from plowing.

In Waxahachie there lives a business man by the name of Mr. Tom Burlison. In 1910 he owned forty-one colonies of bees and kept them in the back yard of his home in the city. After business hours he found there was a world of relaxation and rest in attending to them. That year they averaged 100 pounds of honey and netted him exactly \$450.

Of course one must always take into consideration the fact that a poor season or a poor locality often means failure, but the man who studies his little corsairs and makes it his business to understand their habits and needs is better qualified to stand the attack of drouth and other setbacks than the man who puts his bees in a box hive and lets them stay untouched until he is ready to "rob" them.

IS A PROFITABLE SIDE LINE.

But if one has a reasonably good locality and season he should find it a profitable side line. Thousands do so, though it is a common thing to find a beekeeper who will tell you the venture does not pay in his particular locality and then in the very same section discover a man who will sign his name under the statement that beekeeping is profitable as a side line or a profession to the exclusion of other occupations.

For twenty-three years Mr. Z. S. Weaver has been a beekeeper. His home and apiaries are located at Courtney, Texas. During these years he has had two failures in the honey crop. For ten years his average production of surplus honey was 100 pounds extracted to the colony; for eleven years 75 pounds per colony. Mr. Weaver conducts a general merchandise business and says:

"I find that bees pay a better dividend than any investment I have ever made."

Mr. Weaver takes the best of care of his bees, and in return they do their very best for him.

The *Texas Magazine* is well illustrated and worth reading, especially by any one who contemplates going to Texas for a home. The price is \$1.50, published by the Texas Magazine Publishing Co., Houston, Texas.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

WHEN I READ, p. 375, that it remains to be seen how the fight for bee territory will be settled in California, I couldn't help thinking how much nicer it would be if pasturage for bees were owned the same as pasturage for cattle.

J. E. HAND has it about level as to swarm cells and supersedure cells, p. 267. Bees may start swarm cells, and then there's a let-up in the flow and they supersede; or they may start supersedure cells and a good flow comes on and they swarm. But they're the same cells in either case.

F. DUNDAS TODD writes that two years ago Henry Kacer, near the mouth of the Fraser River, B. C., took 400 pounds of honey from one colony, and netted \$72.00 for it! That would be \$7200 from 100 colonies. Looks like a scheme of that man Todd to cajole some of our best beekeepers across the line.

EDITOR HERROD, *British B. J.*, p. 53, advises beeway sections $4\frac{1}{4} \times 4\frac{1}{4} \times 1$ 15-16. Couldn't you concede that 1-16, Bro. Herrod, making the width $1\frac{1}{8}$, so as to keep company with your Yankee cousins? [Our British cousins use almost exclusively the sections referred to by Mr. Herrod. It is their standard. Why should they change their standard just to please their Yankee cousins?—Ed.]

WHITE CLOVER still keeps at its best, July 13, and colonies may yet average better than usual. Even so, there will not be half a crop, for the bees are lacking to gather it. [If the clover season is as backward about developing in your locality as it was here, you may yet secure a crop of clover. It yielded here nearly three weeks before it made much of a showing. Then all at once it began to pour in.—Ed.]

BEE-POISON is spoken of in GLEANINGS as formic acid; but Dr. Langer found that the poison was something separate and apart from formic acid, and latest research shows that formic acid is developed in honey by mere exposure to air. [This confirms the work of other investigators if we are correct. There has been altogether too much loose talk about formic acid in honey being derived from the bee-sting. We never had any patience with the old sting-trowel theory; and the older we grow the less inclined we feel to accept any theory unless it comes from a well-trained scientific man who is also a practical beekeeper. Some of

our bee literature of the past is ridiculous in the light of modern scientific investigation.—Ed.]

"IT IS QUITE an easy matter to have a lot of choice and vigorous queens reared by the time the swarming season begins," p. 380. I wonder if we could find out how generally that applies. How is it at Medina? In this locality I wouldn't give two cents apiece for queens reared thus early. [A good deal will depend on *when* the honey-flow comes on. It is possible to rear good queens before the honey-flow in Ohio, and, in fact, most of the Northern States. We venture to say that most of the Northern queen-breeders rear 25 per cent of their best queens before the main flow. You say you would not give two cents for early-reared queens. You possibly have in mind queens reared from cells built during chilly or cold weather, when the colony can not protect them properly. Such queens, if they live and lay, would not be worth much more than two cents; but in our locality we usually have conditions so we can raise the finest kind of queens, and have them laying before June 10 or 15, when our first flow comes on.—Ed.]

ACCORDING to figures given by Alex. As-tor, *L'Apiculteur*, 180, there are, in 1 lb. avoirdupois, 4536 young bees just born; 5040 field bees in April; 5465 field bees in May; 6043 robbers in time of dearth; 2926 gorged bees secreting wax. According to those two last items a bee may carry a trifle more than its own weight of honey. [Figures made by Profs. B. F. Koons, Lazenby, and Gillette do not altogether confirm those here given. They find that bees bringing in nectar run about 4000 to the pound, and empty bees a trifle over 5000. While the figures here given indicate that a bee *can* carry more than its own weight of honey, the figures made by Koons show that the most that a bee can carry would be half its own weight. On the other hand, we have seen a single bee carry away its own comrade; and if the honey-sac would distend enough it might carry its own weight of nectar. But while the bees can carry one of their own comrades in flight, it carries it only a short distance, and when it is fresh. But no bee could carry one of its own companions probably a mile or a mile and a half after having flown, we will say, a mile or more to get its load and then carry a weight equal to its own body.—Ed.]

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

Drouth is very severe in many sections of Ontario at this writing, and the honey crop will be greatly cut down on that account. Personally we are more than satisfied with results up to date, as we really expected little if any honey at the apiaries here in York Co.

* * *

That picture on page 406, where 11 colonies of bees are shown with over 100 lbs. per colony piled on them, and gathered from milkweed, forces one to the conclusion that the plant must be a great secreter of nectar. There is very little at our home yards; but at the one yard recently moved north we have abundance. It is just opening, and it would be a pleasant surprise if it were even half as generous in yielding nectar as it is in friend Kirkpatrick's locality.

* * *

When sending copy for July 1, I stated that, by the time my next lot of stuff was sent, we would know if friend Crane's prophecy as to a good honey crop was correct or not. Although, as we have said in previous issues, clover was extremely scarce in our locality this year, yet what little we had yielded well from June 24 till July 7, then shut down at once, owing to drouth and the very small acreage which was rapidly ripening. Strong colonies stored a nice surplus; but many colonies in Ontario this year were not ready for the flow when it came. This fact is gleaned from a lot of correspondence with beekeepers of the Province. Nearly all the honey came in during the afternoons, and from 2 till 7 the flow would be heavy. At this date, July 13, basswood is not open. What little we have looks well, as trees are very full of buds. At both my east and north yard the trees are plentiful, and we are hoping that basswoods will be in good humor this year and give us a crop.

* * *

E. W. Peirce's arguments for cheaper honey are readable, and on the face of it appear *reasonable* too. Briefly capitulated, they sum up about like this: More bees to be kept, better management, and, as a result, more honey can be sold cheaper than at present. That is all right, friend Peirce; but why not apply the same argument to all other produce as well? Get other things cheaper, and then honey can be sold cheaper too. But with steak around 25 cts. per pound, and all other food values in about

the same proportion, it is a poor time to ask the beekeeper to take a less price for his honey, particularly when there is a ready sale for all he can produce; and it is not a question of what we will give you for your honey, but, rather, a statement on the part of the producer as to what he wants and expects to get for it. My honey is sold already, though it is all on the hives ripening; and, needless to say, I got what I asked, although I might say that my price is subject to the price that will be recommended by the crop committee of the Ontario association, which has not as yet had its annual meeting. This may show a little what a benefit such a committee is, when large buyers have confidence enough in them to be willing to buy honey in big lots subject to their ruling.

* * *

During this past two weeks the writer of these notes has been just about busy running back and forth from one yard to another, trying to keep things in shape and to avoid losing any swarms. We have had very little swarming; and what we had was mostly caused by superseding queens, and in this respect old failing queens during the honey-flow are a great nuisance, as you hardly know how to treat a colony that is preparing to supersede their queen; that is, when the colony is at an outapiary and no one in charge. However, I had only one swarm to skip out, and that happened day before yesterday. The next day I was at the yard, and young queens were piping in great shape. I opened the broodnest and cut out about a dozen ripe cells, one queen being noticed as leaving the cell when I lifted out a comb. She ran down in the hive; and I thought that, after shaking all bees off combs and destroying every cell, no second swarming would take place—particularly so, as little honey was coming in. I closed the hive, and in less than ten minutes they swarmed, the swarm alighting in two clusters about 50 feet apart. As the old queen had been a good one, the two small swarms were hived for the sake of the young queens. They certainly had the swarming fever in bad shape, and I suppose that, when I went through the hive, a number of young queens hatched when the bees' attention was called away from guarding the cells; and with three or four virgins loose in the hive, it was a case of swarm at once or else give up the notion and let the queens fight it out.

BEEKEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

There has, perhaps, never been a season in California that showed such spotted results, even in reach of the orange belt, where the bulk of the season's supply was secured. This is due very largely to the failure of the filaree to mature early enough to aid spring breeding, owing to the extreme dryness of the season up to March 1. A few apiaries in reach of filaree in irrigated sections, or where willow or other plants were available for an early supply of pollen, built up rapidly with good results. This only proves what I have previously said, that bees travel a much greater distance when there is some special attraction that excites the entire flight in one direction than they will where there is nothing more than pollen or a hard-earned load of nectar to be secured.

* * *

The following records begin on April 26, and were discontinued on May 2, owing to unfavorable weather and little progress being made by the bees. On May 13 the scales were moved to another colony, and records carefully kept until May 28. The object in this record was not so much to ascertain what the daily increase was as to test some theories of my own as well as those of others, though the former was a factor. The keeping of this daily record has in some respects been a revelation to me, and has disproven some ideas I had held almost as law, and decidedly upset some theories of others. I had always held to the idea that the orange yields most on moderately warm days—that is to say, those days when bees could fly freely, but when there was a lack of intense heat and direct sunshine. To my surprise the best record of any day was made with the temperature running up to 96 degrees at 2 P.M. The most ideal day, according to my previous notions, the temperature was about 75 degrees. The bees tumbled all over themselves in alighting, there being a constant stream crawling up the alighting-board where they missed the entrance; but the record this day was three pounds short of high-record day. So I learned that, when bees come in apparently over-laden with nectar, they are in reality no heavier laden than when the weather is sufficiently warm to enable them to alight promptly, but are retarded in flight by being more or less benumbed by cold nectar and air. The amount stored after 12:30 P.M. was double that of the forenoon, no matter how favor-

able the weather. The highest record of any day was 11½ lbs. Only 4 lbs. had been gathered up to 12:30 P.M. Another observation was that the heaviest gain was during the last 1½ hours of the day; also that, during the first two hours of very favorable days, the shrinkage was often greater than the increase from the field. Arthur C. Miller says that the evaporation is greater up to 2 A.M. than during the remainder of the night. I find differently, in fact, under my observation the evaporation was continuous and nearly equal at all times, continuing until far in the forenoon on foggy mornings. The early morning flight to the field causes a noticeable decrease in weight, while at the day's end, with the retiring of the workers, it adds decidedly. On one cool cloudy day, when there was what seemed to be a fair flight, the evaporation of the previous day's heavy gain was actually four ounces more than was gathered all that day. My conclusion was that the evaporation is continuous until the final sealing of the cells.

I give below the weights taken during five successive days, with weather conditions for each day:

May 22, at daylight, weight 147 lbs.

May 22, at dusk, weight 155¼ lbs.

Gain for the day, 8¼ lbs.; partially cloudy, with cool west wind.

Daylight, May 23, 153¾ lbs.—a shrinkage of 1½ lbs. for the night.

Afternoon, May 23, weight 164½ lbs.—gain for the day, 10¾ lbs.; fine day.

May 24, daylight, 162½; shrinkage for night, 2 lbs.

At dusk, 173½ lbs.; day's gain, 11 lbs.; fine day.

May 25, daylight, 171¼ lbs.; shrinkage, 2¼ lbs. At 12:30 P.M., 170 lbs., showing a loss of 1¼ lbs. for morning. Dusk, 171 lbs.; loss for day ¼ lb.; cloudy, dull, cool, with fair flight during mid-day.

May 26, dawn, 169 lbs.; loss for night, 2 lbs.

Note that the loss for the previous day was ¼ lb., and previous night 2¼ lbs., or a total loss of 4½ lbs. for 48 hours. Though the flight on the 25th seemed to be fair, the weight did not come with it, indicating that the workers, after a short time in the field, returned more to warm up than because of being honey-laden.

Dusk, May 26, weight 177 lbs.—a gain for the day of 8 lbs.; cloudy, clear afternoon, with heavy flight forenoon.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Just to show the variations and the different kinds of climate in the one State of Colorado, and the difficulty of getting an early crop report, consider that comb-honey supers have been put on hives and filled during October. This is done frequently in Montezuma Co. I have seen supers filled in May at Boulder. There is a variation of six months for the one State. Supers are not often taken off until August in Montezuma Co., and more came off in September than in August.

* * *

The premium list for the Kansas State fair is out, and includes \$200 in premiums for bees and honey. The premiums for honey-producing plants is the only class that is limited to Kansas exhibitors. Mr. J. P. Lucas, of Topeka, is superintendent of the bee and honey department, and is making an effort to have a good showing. If you are interested, write to Mr. Lucas and he will see that you get a premium list; and if you care to exhibit he will gladly welcome you.

* * *

THE SEASON SO FAR.

Frequent rains and abundant supplies of water for irrigation have made a fine showing on the alfalfa and sweet clover. The first cutting of alfalfa has made as high as three tons to the acre in the best fields. Rush of farm work has delayed many in cutting alfalfa, and the bees have had a chance. Sweet clover is now in bloom; and with a continuance of the showers we shall get honey between the bloomings of the first and second growth of the alfalfa. Every wild flower yields honey this year; and the way the bees were swarming the first of July would lead one to remark that swarming sometimes is a problem in Colorado. Horsemint always yields abundantly when rains are copious, and the bees give their whereabouts away when working on the horsemint by coming in with the silver-colored pollen dusted over their backs. Colorado should make a good start at retrieving her winter losses this season, and we hope that a honey crop will be also forthcoming. To-day, July 7, the bees are entering the supers in a generous way, and a few finished sections have been taken off.

* * *

The Grand Junction fruitmen are adopting the layer pack, and have opened schools to teach the packers how to pack their fruit. This shows the trend of the grad-

ing problem. The apples will be counted, and the number stamped on the outside of the box. The Northwest is now grading apples for color, size, and shape; and the adoption of this new method by the Colorado fruitmen will mean practically the same thing. Here is a clipping from one of the dailies, The *Denver Post*, regarding the new move.

GROWERS ADOPT LAYER APPLE PACK; EACH BOX TO CONTAIN A CERTAIN NUMBER MARKED ON THE OUTSIDE.

The layer pack for apples has been adopted by the Grand Junction Fruit-growers' Association, and schools of instruction are being held at different points of Grand Valley, where the growers are shown the advantages.

By means of this new pack it is expected practically to revolutionize the fruit industry in this State. The chief advantage in the new standard, which will eventually be adopted all over the State, is the fact that the apples are layered and counted. Each box will contain a certain number of apples, which will be marked plainly on the outside. The purchaser, therefore, will be able, whether he is dealer or consumer, to ascertain just what he is buying when securing a box of Grand Valley apples.

Demonstrations of the new pack are being given daily by the inspectors of the association. The young women who do most of the packing will be given exact instruction as to how each apple must be placed in the box.

* * *

BEE-INSPECTION

Dr. Phillips says that it looked to him as though the two bee-inspection laws of Colorado were both in force. This was my opinion at first; but the intention of the legislature was doubtless to repeal the old law, and I think it is repealed by the new one. This does not hinder the county commissioners from paying the salary of a deputy county inspector, but takes the appointment out of the hands of the county judge. The beemen can reach the commissioner easier than the judge, and the commissioners feel better to have the say as to whom they will pay for doing the inspection. If the beemen take interest enough they can and do tell the commissioners whom they want for county deputy inspector, and the office of State entomologist has been able to co-operate with the selections made by the beemen and commissioners, and has commissioned them as deputies of the State entomologist, to whom they report, and under whose general direction they work. We want some changes in the law, but are getting some results as it is.

From reports already received, the percentage of foul brood has been materially reduced over last year's percentage in the counties of Mesa, Delta, Montrose, and Fremont. Other counties are to be heard from, and it is hoped that the reports will be equally good.

Conversations with Doolittle

At Borodino, New York

DRONES OUT OF SEASON.

Please give me a practical way of raising drones during a dearth of nectar. Then also tell how to care for them so the bees will not drive them out.

Nashville, Tenn.

W. F. MORRIS.

The first question is a hard one. When there comes such a dearth of nectar that all the drones are killed, especially if it comes at the close of the white-honey harvest, it is almost impossible to make any colony start to rearing drones again in this locality. The bees seem to know that no more drones are necessary for the remainder of the year, and, no matter how regularly or liberally we feed, the queen will not deposit eggs in drone comb, even if we make half the cells of the combs of that size. But, strange to say, should there come a yield of nectar from buckwheat three or four weeks later, the queen will lay in the drone-cells, as we often have swarms issue when there is a two or three weeks' yield from that source. But, as I said, we may feed as much as we please during the period when the buckwheat should secrete nectar, and it seems to have no effect on drone-rearing, even though the amount stored may be twice as great as though the honey were stored from buckwheat.

In some cases where the bees were bent on superseding their queen I have succeeded in having a few eggs laid in drone-cells by feeding in a time of dearth. The older the queen, the more drones will be reared; therefore if we try for drones out of season we must use old queens or those on the point of failing, even though young in years.

If there is a drone mother at an out-apiary, or one is taken with her colony three or four miles from home a week or two prior to the close of the main nectar flow, her drones may be made useful in the home apiary in this way: Take the bee-funnel and a box having queen-excluding metal on one side of it to this colony as soon as the flow from nectar ceases. Then look over the frames till the comb is found that the queen is on. Set this aside, and shake all the other frames in the funnel, so that the bees will "rattle" down through it into the box below. The combs do not have to be shaken very hard to dislodge drones, for they do not stick as tenaciously as do the workers. If there are many drones on the comb with the queen she can now be picked off and placed on one of the combs, when these can also be shaken down through the

funnel into the box. Now close the funnel hole in the box and place it near the entrance to the hive, having the queen-excluding metal so that the workers can run out near the entrance and into it, while you are getting the hive properly closed. A few workers should be left in the box to care for the drones on the way home; and when the right number remain, close the queen-excluder side with wire cloth.

Arriving home, take the box of drones to the prepared queenless colony; open the funnel hole of the box, turning that side of the box down over the frames, when the drones will run out into the queenless colony, where they will be at home till they are used for mating purposes or die of old age.

In order to have drones clear to the close of the queen-rearing season, I prefer the following: A day or two before the nectar flow has entirely ceased I go to the colonies having my best drone mothers, which were prepared for drone production at the opening of the season by giving two or more frames of drone comb, and take out these drone combs, substituting frames of worker comb. These will have more or less drone brood in them, from the egg to the maturing brood, if we do not wait till the flow ceases, and they should be set in the prepared queenless colony. In this way we gain from 24 to 28 days, having young vigorous drones all the way through. This colony having these drones and the drone brood must be kept *queenless* all the time after we select it for keeping drones; for with the great number of drones it will contain in proportion to the workers, the drones would be slaughtered on the least provocation when there is a dearth of nectar. I used to allow such a colony to rear and fertilize a queen; and as soon as she got to laying I took her out and gave another ripe cell; but as the season waned the bees would go to persecuting the drones as soon as the queen became fertile, even before she had laid an egg. Frames of sealed worker brood must be given this colony every two weeks to keep up sufficient force to care for the drones, and regular feeding resorted to, so that there will be a vigorous flight every fine day. If a two or three story hive is used, better results will be obtained, especially if the third story is filled with frames of sealed honey. A large colony *rich in stores*, and a daily "ration," will always give a vigorous flight at any time the queens can go out.

General Correspondence

AN EFFICIENT COMB-MELTER

Something to Sterilize the Honey as well as the Wax of Foul-broody Combs

BY WESLEY FOSTER.

Mr. R. W. Ensley, of Read, Colorado, operates about 700 colonies of bees in a district where foul brood is prevalent. In building up his apiaries he has bought many hives from his neighbors, and, as a result, has many old combs and diseased

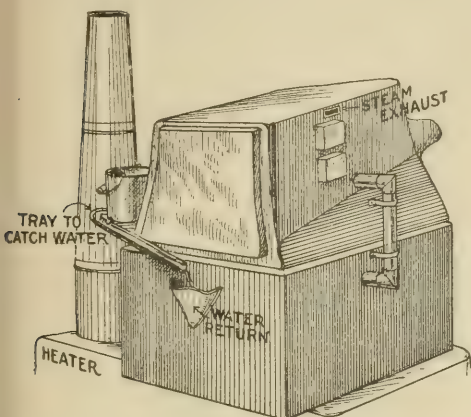


FIG. 1.—Back view of Ensley's comb-melter.

ones to melt up. One or two hundred hives of comb is not an unusual amount to be rendered during the year. Mr. Ensley designed and had built for him a comb-melter to render the honey and wax from these old combs. He wanted an apparatus that would separate the honey from the wax and leave both in good condition.

First he has a double boiler set over his furnace; then above this is the comb-melter proper, which is nothing more nor less than an alternating series of steam-chambers and comb-receiving chambers. The comb-chambers are about $2\frac{1}{2}$ inches high, 20 inches wide, and 30 or more long. Each comb-chamber will take three Hoffman frames at a time, and there are six in all. More can be added if wanted, by building the melter higher. The comb-chambers slope toward the back, the lower end of each being open so that the honey and wax can run off into the double boiler below. A piece of coarse screen wire across the lower end of each comb-chamber keeps the coarsest of the refuse from getting into the boiler. This refuse is raked out and run

through the wax-press. The fronts of the comb-chambers are closed with wooden drawers fitted with wire handles, and beveled so they will slip out easily.

The steam-chambers are all connected with live steam from the double boiler below by means of the pipe shown in the illustration. The steam passes into the lower steam-chamber (below the first comb-chamber), and on the opposite side is led out and up into the next higher space for steam, which is just below the second comb-chamber. The steam is led back and forth and up till the top is reached, where there is a hole by which the exhaust steam escapes. There is some condensation in each steam-chamber, and a small hole is made in the lower corner where this water can run out. Fig. 2 shows that these holes are all in line, and the water drips down upon a tray, and a trough leads back into a funnel feeding this water back into the double boiler. The condensation is not enough to keep up the water-level in the boiler, so a pail is placed on this tray, with a small hole in it, feeding water into the boiler as fast as needed. To prevent the steam from escaping from this hole a small cloth is placed into it, the water soaking through, but the steam does not come out. Of course, there would be trouble if the pressure were great; but heavy pressure is not necessary with an apparatus of this kind. The small boxes on the side of the melter are to carry the steam from one steam-chamber up past the comb-chamber to the next steam-chamber above.

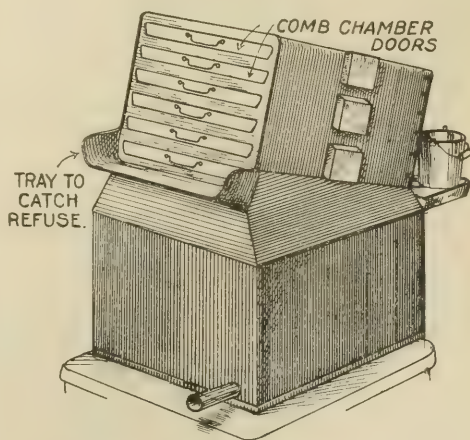


FIG. 2.—Front view, showing the doors to the comb-trays.

A tray is attached below the comb-chamber doors to catch the refuse when removing frames and raking out the chambers. The double boiler is tipped slightly forward and to the side upon which the faucet is

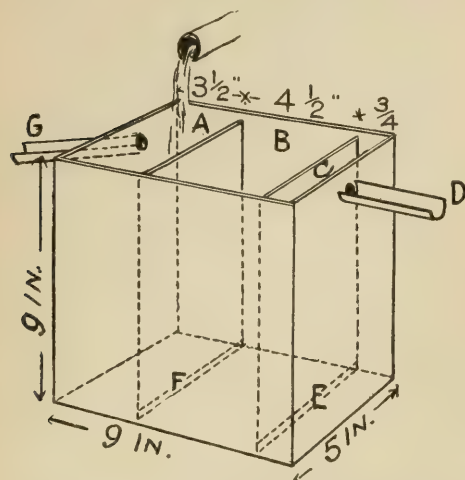


FIG. 3.—A, wax-compartment; B, first honey-compartment; C, second honey-compartment; D, honey-exit; E, honey-exit, opening into second part; F, honey-exit, opening into first part; G, wax-exit.

placed, facilitating the draining of the honey and wax. The comb-melter resting upon it slopes straight back level from side to side. I did not measure the drop, but I should judge that it is about three inches.

From the double boiler the honey and wax are drained off into a galvanized-iron wax and honey separator illustrated in Fig. 3. Mr. Ensley tells me that this honey and wax separator works well, but that the sides should be made sloping so that the wax cakes forming when the flow is stopped will be easily removed. The cost of this whole outfit was about thirty dollars. It was the first one he made, and he had to pay the tinner for the time they worked, and for the changes that were made that had not been counted upon. Another machine would not cost as much as this one.

The steam-chambers were first made, and the comb-chambers were formed by soldering on tin strips about three inches wide on the sides. The back was then closed with tin, and the front with the doors, etc.

Boulder, Col.

[We understand that the object of this melter is to save the honey. If the combs were in shape so that they could be run through a honey-extractor first, it is probable that a good wax-press would save time and would cost less besides. But the outfit here shown would sterilize the honey in the first place.—Ed.]

WOULD THE NATIONAL ASSOCIATION BE OF BENEFIT TO BEEKEEPERS OF CALIFORNIA?

BY P. C. CHADWICK.

On page 154 of the April issue of *The Beekeepers' Review* Editor Tyrrell takes a shot at our State Association. From the trend of his remarks Mr. Tyrrell seems to think the California Association is out after blood, and tells how he is receiving individual memberships that are being placed in other National branches outside of our State, and also how the National, if they can not get the support of local associations, will go calmly to work and organize their National members in that State.

It is a pretty easy matter to sit at a desk in Detroit and tell how all this work is going to be done; but doing it is another proposition; and if calmness prevails long I fear the editor's work would not progress very rapidly.

We have no fight on the National; and whenever it is shown that we can receive more for our money there than from our State Association we will surely be there. Personally I love the "Old National," and have no crow to pick with it; but I do not consider this talk about what big things the National is going to do as idle, from the simple fact that it is the consensus of opinion here that we have never received benefit commensurate with what we have paid in.

The men at the head of our State association have their work at heart, and have paid expenses from their own pockets, running into the hundreds, to get the beekeepers together in this State, and they are going to succeed so far as the progressive element of the State is concerned. My advice to the National is to keep hands off. When we get thoroughly organized, if the National can prove to us additional benefits we will not hesitate to come in; but threats will only make the breach wider and our return more impossible.

Redlands, Cal.

[We could not feel that Editor Tyrrell meant to cast any reflection on the beekeepers of California, and we therefore offered him the opportunity of replying to the foregoing, which opportunity he accepted, as shown by the following:—]

Brother Chadwick, I wish I could answer your article by drawing my chair right up alongside yours and talking this matter over instead of putting it down in cold type. Somehow or other it is hard to get things in print just as I mean them.

If any thing I have said gives the impression that I am in any way against the

California Association, I want to say that I am sorry, for that is not the feeling I have. Far from that, I realize that every help should be given these different associations, and I realize the fact that they are doing a good work.

But you must not forget that I am serving the National Association; and as such servant I must advance its interests and that of its members wherever possible. Proper organization means a branch in every State; and if a State association said, "We won't join the National," you would hardly expect me to lie down and say, "It's no use trying to do a thing in that State." We must protect our members there the same as you do yours.

You are right in believing it is easier to sit at a desk in Detroit and tell how this work of organization is to be done than it is to do it. My twelve years' work along organization lines, from a local solicitor to general field manager for a farmers' organization now numbering 70,000, proves this. But, friend Chadwick, it can be done; and the fact that many think it can not makes the work that much more interesting.

After all, I believe we are together in our desires, even should we differ in the methods. Both you and I would like to see your State association prosper. Both of us would like to see the National prosper. And I believe we both agree that, if the California State and National could be pulling together in double harness, neither taking from the other but rather adding to, a great deal more good would come of it than for either or both to travel alone. Then why can't they?

Detroit, Mich.

E. B. TYRRELL.

BULK-COMB-HONEY-PRODUCTION POSSIBLE FOR NORTHERN BEEKEEPERS

BY J. J. WILDER

I have enough tangling and knotty problems to solve in beekeeping in my own part of the country without soaring away to the North, and there trying to help the beekeepers over their rough places; but allow me to offer a few suggestions that might make bulk-comb-honey production possible in the North as well as here.

The greatest fear seems to be that honey thus packed would soon granulate, or candy, and that there would be no demand for it in this condition. This would certainly be the case, for it is true that in the South we have no market for such an article, and perhaps never shall have. Such honey must keep in a liquid state until it is sold and

consumed — that is, the extracted honey which is poured in around the comb honey to fill the package and make it uniform in weight. Now, if this extracted honey would retain its liquid state the chunks of comb honey packed in it would not granulate or candy; and all the contents of the package would remain liquid and transparent. It would be, in fact, a very attractive package, bringing the highest possible price in any honey market.

Now, it would take a fancy article of extracted honey (and of a good mild flavor too) to pack up the light comb honey of the North as bulk comb honey, else it would spoil it; and I am not familiar enough with the honeys of the North to know whether there is such an article of extracted honey produced there that would not candy or granulate. If not, this would be another great obstacle in the way; but this could be averted by obtaining it from other beekeepers in other sections of the United States. It could be bought at the prevailing prices of extracted honey, transportation charges paid, and packed with comb honey would bring on the market the prevailing prices of comb honey, which would net the buyer a good profit after these expenses. If it were desired to pack up an off grade of comb honey into bulk comb honey in cans and pails, an off grade of suitable extracted honey could be obtained for this purpose.

The question might be asked, "Could a sufficient amount of suitable extracted honey be obtained for this purpose?"

I will answer yes. If the comb honey is packed properly in the proper size of jars it would not take much extracted honey to pack up a lot of comb honey. I have tried all sizes and kinds of vessels for packing bulk comb honey in for a number of years; and I have found the pint or 24-oz. Mason fruit-jars of the flint variety the best all-around package for packing up fancy honey in this manner. These jars are just as high as a comb of honey cut from a regular shallow extracting-frame is wide; and all that is necessary is to cut it across the proper width, which should be nearly as wide as the mouth of the jar; and when two of the pieces thus cut are placed in properly there is not much room for the extracted honey, and therefore a small amount of honey would go a long way. And it could be packed in cans and pails of a suitable height, in a similar manner.

But coming closer to the supply of suitable extracted honey, and how to obtain it, in our great Southeast there are many beekeepers located in the tupelo-gum regions who make a specialty of producing extract-

ed honey from this plant, and carloads of it are put on the market each season packed mostly in 30-gallon barrels. This honey is in every particular suitable for the purpose, and the bulk-comb-honey producer of the North could get in touch with the producers of this honey, and contract with them for so many barrels each season to pack up their honey in. There is no question about this honey being suitable for the purpose, for I have been using it for a number of years with perfect satisfaction. Our honey from the cotton plant is quick to granulate if extracted, and will gradually do so in the comb as cold weather comes on; but if it is packed in tupelo honey it will not. I have a jar of it which I have had packed for several seasons, and it has been in my refrigerator now for several weeks, and it shows no signs of granulation, but remains clear and transparent. I don't know whether the test is severe enough; but I believe it will stand any climate almost indefinitely and not granulate. No doubt beekeepers in other sections of the United States produce a similar article that would be equally satisfactory, which could be obtained for the same purpose and in the same manner.

Cordele, Ga.

To be continued.

MUTABILITY OF THE DOMESTICATED BEE

Parthenogenesis Should Prove Helpful

BY LEO ELLIS GATELEY

I was asked recently if, during the past half-century in which we have been importing Italian bees, any thing has been gained above the regular strain. Replying to that, I beg to say that, in respect to the *possibilities* of breeding, a great deal has been gained. While the yellow bees of this country in general fall below the average compared to the darker bee it is, without any doubt, the result of faulty breeding. The original strain has for many years been kept in large apiaries devoted to honey production, and bred accordingly. Extra-yellow bees have been confined to less extensive apiaries devoted to queen-rearing, and selection in breeding made for color alone. By taking this bee as it is, and improving it along general lines, it would soon equal the strain from which it originated. The important fact, however, in regard to the goldens is that it marks clearly an epoch in bee improvement, and illus-

trates the mutableness of the species. In condemning this strain for points upon which it has not been bred, beekeepers apparently fail to realize that, while the older countries from which the bee was introduced into America are still content to keep the same old varieties of that period, we have developed a new and distinct type. It is a deplorable fact, that just how the development of this American product was begun and carried out is not on record, but was doubtless accomplished through a long course of selecting highly colored mutations for breeding stock. The modesty and simplicity of American queen-breeders is exemplified, also, by the fact that this product of unrecorded thought and painstaking is a nameless quantity, satisfied to appear under such impressive titles as "Golden," "Beauties," "Nutmeg," "Five-banders," and "Golden-all-over." Nevertheless, the development of this distinctive strain but emphasizes the mutability of the Italian bee, of which there has never existed reasonable grounds for doubt.

In the opinion of some, the parthenogenetic development of drones will prove an obstacle to progress in breeding for improvement. Parthenogenesis should be incalculably helpful in so much that relief is here found from having to see that all drone-producing queens are purely mated. Were it not for parthenogenesis the task of breeding would be indeed complicated; for if any of our young queens should prove to be mated it would work havoc with our breeding operations. Let us be thankful, then, that we have this invaluable aid, found absent in the breeding of other live stock. Though the mating of queens has many difficult points, one can, in the average locality, control the flight of drones to an extent that, for all practical purposes, there will be no haphazard mating.

Unquestionably the one real bar to progress is in making intelligent selection of breeding queens. The few who take adequate interest in breeding bees fail to realize the necessity of seeking improvement along general lines; and colonies are so deceptive at honey-storing that only by possessing a clear understanding of how outside conditions affect the amount of surplus gathered can one make judicious choice. The colony storing the least yield may, under certain circumstances, be the one most desirable when breeding for honey; and that producing the enormous yield, if it is not a black or hybrid one, may result in any thing but a mutation in the sense expected.

Ft. Smith, Ark.



F. B. Cavanagh's two-cylinder Jackson automobile, with the carrying rack at one side, the latter being tipped over so as to give a top view.

CONSTRUCTION OF THE AUTOMOBILE TRAILER

BY F. B. CAVANAGH.

In response to inquiries regarding my auto and its different sets of "harness" I wish to give the following description:

Fig. 1 shows the machine with a top view of the carrying rack, which was placed on its side at the rear. The back fenders must be removed for use with either trailer or rack, both being built out over the rear wheels. The projecting side-boards of the rack also extend forward and form extra seats when we have a five-passenger load. This rack could be improved by making it about 18 inches longer, and building wide double doors in place of the narrow door which, as shown in the photo, is propped up with a stick.

This picture is shown for the purpose of making clear to the reader the means of connecting the trailer to the auto. This connection must, of course, be very flexible, both laterally and longitudinally, otherwise difficulties would arise when driving on uneven ground.

The drawbar, or "fifth wheel," if we may call it that, for lack of a better name, is built on a 2x6 secured with four bolts which extend through the frame of the automobile, and which are easily removable. In the middle of this piece is a one-inch piece with a V-shaped slot cut out and covered with a solid plate of steel $\frac{3}{8}$ inch thick. This plate draws the trailer with the $\frac{3}{4}$ inch steel bolt which is shown in Fig. 2, and extends in order through the crosspiece of the

trailer, the steel plate, the reach of the trailer, and finally the automobile deck, where it is secured with a $\frac{3}{8}$ bolt and nut.

The hole is made large in the deck of the auto and in the 2x6, to allow flexibility in all directions. It will be observed that the pulling tension is all on the steel plate with the auto and with the trailer jointly, from the reach and the $\frac{3}{4}$ -inch machine-steel kingbolt. Lateral stability is secured by contact with an upper plate on the cross-piece of the trailer, corresponding in size to the lower one. These parts must be made of the best material, and must be strongly built.

Fig. 2 shows the trailer reared up to give the reader a general idea of the construction. Two strong carriage wheels and springs of suitable weight are required. The reach extends upward at an angle to within a foot of the connection to which it enters on a parallel with both trailer and auto decks. The 2x4's supporting the deck are about 11½ ft. long, and crosspieces are 1¼x5x6½ ft. long, and of white pine. The deck is tongued and grooved, $\frac{5}{8}$ inch yellow pine. A strip of $\frac{3}{4}$ x4 pine is nailed to the edge, forming a 1½-inch ledge when used for hauling. The iron loops around the edge hold the cover, which is used in hauling bees and to hold the wire-cloth canvas trailer top.

Those who have seen the picture on page 500, Aug. 15, 1911, showing the trailer with a load of supers, will understand how the top is connected to the two-foot wire-screen framework. A canvas cover with ample windows on each side is secured by strips



Cavanagh's automobile trailer. View from under side.

nailed all around the upper edge of the screen framework. A light frame with gable top is hinged at each end to the screen frame so as to swing toward the center when the top is collapsed for traveling. When extracting, the ends are held upright with removable braces at each corner, and the cover stretched in position. It will be observed that, if the ends were hinged directly to the trailer deck, instead of to a two-foot stationary frame, there would not be room for the top to be folded down flat on the machinery.

Hebron, Ind.

SELLING HONEY DIRECT TO THE CONSUMER

Should the Selling Price be Increased to Meet the Growing Demand?

BY HARRY LATHROP

In an editorial, page 35, Jan. 15, I note the following: "But the scarcity of comb honey and its higher price should make producers wake up to the importance of

producing more section honey." Present conditions would not seem to justify me in changing from the production of extracted to that of comb honey. My extracted honey nets me 10 cents, and is sold at that price direct to consumers, or to merchants or distributors. I am unable to secure more stock, even at 9 cents cents in job lots delivered here; and having sold out I must tell my customers that I am unable to fill orders before the new crop comes in. I have a letter from President York in which he advises me that some lots of fine comb honey are being sold in Chicago at 12½ to 13 cents. Those prices do not look good to me in view of the fact that I can not buy western white extracted honey in that city at less than 9 or 9½ cents. We ought to work toward uniformity of price and a stable market for our product. I advocate

selling direct to consumers, and at as low a price, or as near first cost, as possible. This will increase the consumption of honey, and make it a popular food, as it deserves to be.

I will explain why I ask jobbers or merchants one dollar a pail for a ten-pound package, the same as the one who buys only one pail. If a customer comes to me for a single pail of honey I hand it to him and take his dollar. I have no boxing to do, no shipping, and many times do not even put a label on it. He gets the honey at a wholesale price by coming after it. If a customer writes for a single pail by express he incloses one dollar. The express charges on the honey will be 35 cents. This leaves a margin for the distributor or merchant who will buy by the dozen and have the honey shipped by freight. When I am asked to make a lower price on lots I tell the purchaser to make his own selling price and get his profit out of the consumer, and not out of me. There may be some weak points in this method, but I can't see where it is unfair to any one. True, it gives my home

customers the advantage of a minimum price, and that is what I want. I wish to sell as much around home as I possibly can. If I could sell it all at home I would not ship any to help glut distant markets. My honey nets 10 cents, as the pail is weighed in.

I made only one mistake in my management, as I see it, the past season. I sold 3000 lbs. of amber fall extracted to a cracker-factory at 7 cents on cars at my station, and lost the cans in which it was stored. I reserved a thousand pounds of the same honey, and sold it out the same as the white at ten cents net. I find quite a number of customers who prefer this amber honey straight. Others think that a blend of half white and half amber is just right. This latter is, indeed, a very pleasing honey, and I believe we have no need to take a greatly reduced price for a good quality of amber honey from heartsease and the general autumn flowers of the middle States.

I think it is a good thing to discuss prices and to let each other know what we are doing. I have reached a point where I must either keep more bees and produce more honey to supply my growing trade or raise my price in order to cut some of it off. I can't buy honey at a price that would allow

me to make any thing for the trouble of re-packing and selling—at least not this season. I know that farmers would raise the price of eggs to one dollar a dozen if there was a scarcity and they could get that much; but I don't feel like raising the price of honey in that way, nor do I believe it would be good policy. Tell me, if you can, editors or readers, what would be the best thing to do.

Bridgeport, Wis., Feb. 7.

DINE'S METHOD OF RAISING QUEENS

Where the Scheme Originated

BY I. HOPKINS.

Under the above heading there appeared in the *Canadian Bee Journal* for March last, page 75, an article by Mr. Oscar Dines, on the plan he has adopted for raising queen-cells, and also an editorial introduction to the article, in which it is claimed that Mr. Dines is the originator of the method. The plan is also described by Mr. Holtermann in *GLEANINGS* for March 15, page 177, Mr. Dines' experience being given as set out by himself.

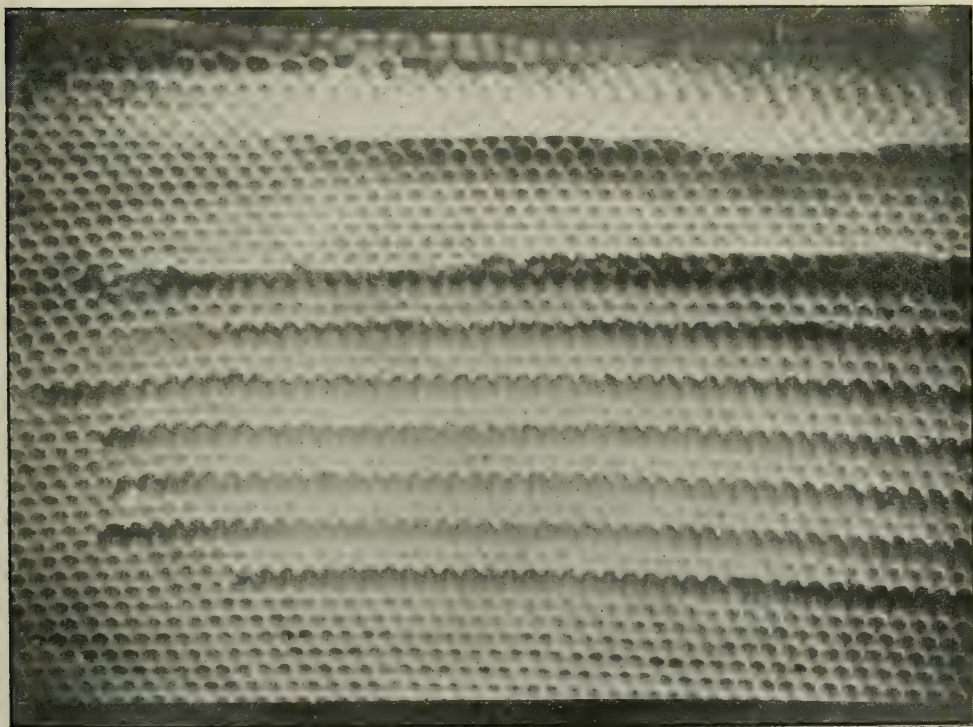


FIG. 1.—Portion of comb prepared for cell-building in New Zealand.

Now, it is not often that American editors are caught napping; but I think I can prove that they do indulge in a nap sometimes, and that Editor Hurley, of the *Canadian Bee Journal*, must have been sleeping soundly when he wrote that editorial or he would certainly have known where the scheme really had its origin, which was neither in America nor Canada. SCHEME FIRST ADOPTED IN NEW ZEALAND

AMONG ENGLISH-SPEAKING PEOPLE.

Although not the originator, I believe I was the first to adopt the method among English-speaking beekeepers. During the season of 1909 I made my first attempt at one of our state apiaries, which resulted in 60 fine cells, and on the second venture 80 grand ones were obtained. I took photos of both combs (one of each of which I am sending you); but as they were taken in a very bad light, inside, to avoid draft, they are not very clear. Being a staunch advocate of the Alley plan of raising queens, the method appealed to me, and we still carry it out in the government apiary.

On October 23, 1909, I wrote Dr. E. F. Phillips, giving him a brief description of the method, telling him where I got it, and sent him a photo of the first batch of cells. He afterward informed me that he had explained the system before, I think, the New

York convention of beekeepers. In the August number of the *New Zealand Farmer* for 1910 (which you, Mr. Editor, may have in your files) I published the process in full, with illustrations; and when revising for the fifth edition of my "Australian Bee Manual" in June, 1910, I included it, so that the method, though apparently having failed to reach the majority of beekeepers in America, has been well ventilated in this part of the world for over two years and a half.

Possibly Dr. Phillips may have forestalled me in this matter; but as I am ignorant whether he has or not, I can not be blamed for repetition if he has. I hope Editor Hurley will not get too great a shock when I tell him that it was out of his own journal for July, 1909, page 255, I got the information, contributed, I think, by Jacob Habera, or Habbera, and translated from an Austrian bee journal. This, I think, will clear up the mystery.

THE PRACTICAL USEFULNESS OF THE METHOD

You, Mr. Editor (page 178, March 15), express a doubt about its being wise to allow more than two dozen cells to be attended to in one colony. That was about the number I considered enough at one time; but more mature experience has convinced me that a strong two or three story

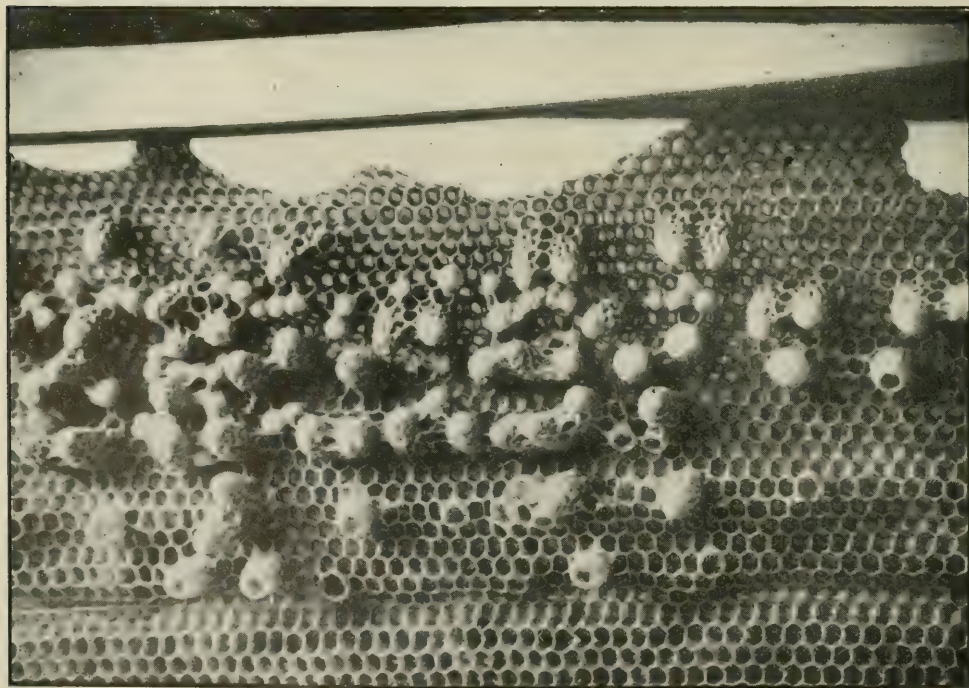


FIG. 2.—Sixty good cells obtained on this comb at the first attempt. First week in October, 1909.

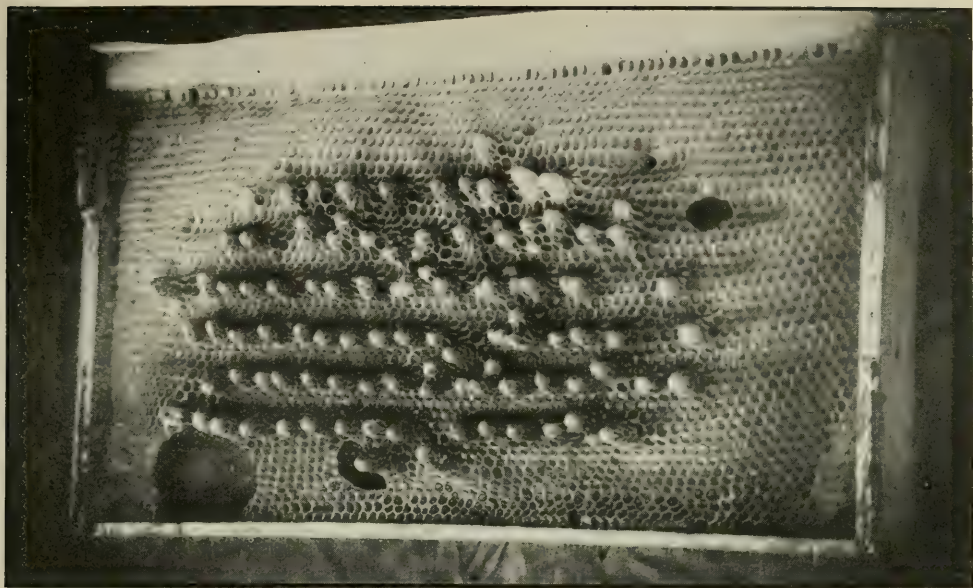


FIG. 3.—Eighty good cells—second attempt, second week in October, 1909.

colony, overflowing with bees, with many thousands of nurse bees, and plenty emerging every day, deprived of all unsealed brood, can readily attend to and bring to maturity more than twice that number (as I have abundantly proved) of first-class queen-cells. All our cells at the government apiaries are raised in such colonies. I never did believe in the "swarm-box" and small-colony system of raising queen-cells.

Mr. Dines describes his plan of supporting the frame of comb in a horizontal position, the trouble connected with which seems to me unnecessary. All we do is to lay an empty frame on its flat, over the lower frames; place the frame of comb on this; cover the latter with a light mat; put on an empty half-story, and the top box or boxes above it. In four or five days we return the queen to the brood-chamber; place on a queen-excluder above, and the cells and top boxes as before.

PREPARING THE COMB FOR CELLS.

I prefer a last season's built comb that has been bred in, after getting it well filled with eggs from one of my breeding queens in the usual way. I cut down on one side to the midrib on each side of every fourth row of cells with a thin budding-knife, and scoop out the three intermediate rows with a broad bradawl; then one out of every three eggs in the rows is left, and the others killed with a splint that has been dipped into wax. I don't touch the other side of the comb. In very hot weather the

comb may need a center support. Securing such a large number of cells, one can well afford to discard any that appear to be below a high standard.

Auckland, New Zealand.

[Dr. E. F. Phillips, of the Bureau of Entomology, after seeing our footnote calling attention to the similarity of this plan to the Alley method, stated that he obtained it from Mr. I. Hopkins, of Australia. He thought so well of it that he placed it before the beekeepers of the New York State convention some two or three years ago.

While we admit that as many as eighty or a hundred good cells *may* be secured in one batch, experience in rearing thousands of queens every season has shown us that it is better not to try to raise over two dozen at a time. One may suppose that the cells are all good; but our experience seems to indicate that queens raised from the cells where so many are built at a time are likely to be short-lived. We *can* raise a hundred cells in a batch—have done it time and again, years ago.

There may be some advantages in the method here described, particularly for beginners and professional honey-producers who have not the time to learn the intricacies of the art of raising cells by the grafting plan in wooden cell cups; but our men who raise queens by the thousand say the other plan is too slow. But we are going to get them to try it over, following very carefully Mr. Hopkins' directions as here given. We will report results.—Ed.]

A SWARM CAUGHT BY THE USE OF OIL OF ANISE

BY EDWIN A. SMITH

My brother and I once caught 76 swarms in one month. We take any kind of box that will hold frames, put starters in them, then put the prepared boxes in trees. We put a drop of oil or anise in the box long before a swarm finds the place.

I never saw a swarm of bees until last spring. When my brother and I started, we thought we would try it, so we put out boxes and caught 72 swarms. We sold \$136 worth of comb honey, then sold the bees, and started in new last month. California is the place to catch runaway bees.

I get the oil of anise at a drugstore. Before I start out I put a drop or two of anise in the box, then I locate the boxes in trees, under brush, or any place where the sun doesn't strike them in the heat of the day. I can catch twelve swarms by the use of anise where I could catch only one

without. Last year I put out boxes without any thing in them but the anise, and caught 72 swarms out of 75. I look at the boxes every week, and in those that have no bees I put another drop of the anise on the alighting-board.

Whittier, Cal.

[The use of oil of anise is mentioned in the A B C book, under the head of "Bee-hunting." I have used it, but did not find it of more benefit than burning combs, etc. As the perfume from the anise, however, would last for several hours, and perhaps days, it would be an advantage for the decoy.—A. I. R.]

SOME CALAMITIES IN THE APIARY

Flood and Suffocation

BY E. F. ATWATER

The first serious mishap which occurred among our bees was in 1905, when, in addition to a crop failure, an entire yard was almost destroyed by water. This apiary was located in a bend of an irrigation canal, where it was a little low; but as the ground was dry, and had never been irrigated, we did not even have the entire yard on the four-inch Miller stands which we were using at that time. Just as the flow was due we visited that yard, and were greeted by a stench not unlike that from foul brood, and almost overpowering in its intensity. Upon examination we found that almost every colony had suffered severely, while some were dead. During the night a rancher had turned into this canal 400 inches more water than it was built to carry, and the overflow came to our apiary. The weather was warm, the colonies strong, so that every tight hive had its entrance closed by the water. The bees had all but suffocated, and the brood was scalded by the confined



A large swarm caught by the use of a little oil of anise in a box located in a tree.



One of E. F. Atwater's yards, Meridian, Idaho, that was practically destroyed by fire started by a spark from a passing train.

heat. The colonies in hives that were old and gaping were but little injured.

Another experience which is little less than a calamity is when an entire yard must be shaken for foul brood. This has happened twice in our 16 years of beekeeping.

In June, 1909, a spark from a passing train ignited the grass in our Taylor yard. The tenants on the ranch fought the fire as best they could, so that we lost but few colonies outright, though a large part of the field force was burned as they came in from the fields and tried to enter their hives. Where there were open ventilators the flames sucked in at the entrances and up like a chimney. Part of the debris is shown in the picture. The three children standing at the left are the son and two daughters of the good German tenants who took an active part in fighting the flames. Notice the utilitarian costume of the two girls.

In March, 1910, we were hurriedly called to the phone and informed that our Bennet yard was fast being flooded. It was almost night, but we secured help and drove to within a mile of the yard, where the road became a torrent of icy water, with an ice-jam just below. Here we left our team and took to the track of the electric railway, and finally arrived at the yard where the water raged, from a few inches to two feet deep.

The wintering sheds were demolished, tar paper torn away, and, leaving one colony in the water, two or three were piled on top over the entire yard. As we lifted each hive, gallons of icy water poured out of the

entrance and down my clothes as I handled the front ends of the hives. After we piled up the entire yard in this manner we went back to our team where we partially dried our clothes over a fire and drove home.

The results were surprising. The flood abated soon after we left the yard, and only one colony was lost outright; and as there was but little brood at that time, the yard built up and yielded a normal crop. We found that the water simply drove the bees to the top of the hives (part were two-story), and if any little opening was found in quilt or cover, a part of the bees would be quietly clustered on the outside of the hives.

Meridian, Idaho.

CLIPPED QUEENS AND ARTIFICIAL SWARMING

A Clipped Queen that Lived to be Eight Years Old

BY J. W. NICHOLS.

Having been interested in the articles on clipped queens by H. E. Harrington, p. 143, March 1, and by Harry Lathrop, p. 285, May 1, I wish to add a word in line with what Mr. Lathrop has said. While I am a beekeeper in only a small way I have clipped queens for fifteen years, and have always been successful. Unlike Mr. Lathrop, however, I clip both wings on both sides short, so that, when a swarm issues, the queen will not leave the entrance-board, but will be found in front of the hive where she can be easily caged, and the hive exchanged for a new one, ready for the re-

turn of the swarm, which occurs soon after they find themselves without a queen.

I think that, in many cases, the disposition to swarm is clipped with the wings. I once clipped a two-year-old queen that lived and worked for six seasons, without taking out a swarm or having a queen-cell built. She worked seven seasons with her own bees—two seasons unclipped and five seasons clipped—and in the eighth season she was put with a weak stand; and in July, after they were strong, she died of old age. Can Mr. Harrington tell why those bees did not discover in all those years that she was maimed?

I clip my queens in the queen-rearing hive, and introduce them clipped and without caging. Caging queens in the hive belongs to the methods of the past.

I cage the queen in the afternoon, and leave the cage on the frames of the small hive; then, after sundown (always), when the field workers are all in, I take the queen in the cage to the large hive; open it, and give the bees a little smoke; then let the queen run down with the bees, shut the hive, and do not open it for three days. The queen then will be safe. I have not lost a queen, introduced by this plan, for ten years.

TWO PLANS FOR MAKING ARTIFICIAL SWARMS.

I am not a lover of natural swarming, so I clip all my queens, cut queen-cells, and make my swarms artificially by two plans. The first is old, and the most simple, and is one which I use only after the honey-flow is in, which is usually some time in July. At nine o'clock some fine morning, when the field workers are beginning to come in, I take from a strong stand a frame of brood having fresh eggs, paying no attention to the queen, and place it in a hive with seven frames filled with full sheets of foundation, putting one frame with foundation in the old hive in place of the frame I have taken out. Then I remove the old hive to a new stand, and place the new one on the old stand in time to catch the field workers. If the queen is left in the old hive she will have no disposition to swarm when robbed of her bees, and will destroy the queen-cells, if there are any. If she is in the new hive on the old stand, the first young queen out in the old hive will do the same.

With the other plan, which I now use the most, I do not disturb the working colonies. Early in the season, as soon as there are drones, I take four queen-rearing hives that hold three brood-frames each, dividing among them the frames from an eight-frame colony, giving each hive one frame having fresh eggs. I then put in each hive a third frame having comb or foundation. The old

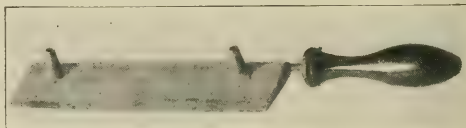
queen will be in one of the four hives. When the other three parts of the colony find themselves queenless they will build queen-cells and rear a queen for themselves. As soon as the old queen has the three-frame hive filled so that she wants more room I place her in an eight-frame hive having five frames of foundation. When the queens in the other three hives have hatched, mated, are laying, and want more room, I place them also in eight-frame hives having five frames of foundation. By this plan I disturb only one colony and add three; but if I have a colony that has the swarming fever and will not stay, I take it to a new stand and place one of the young queens with her bees on the stand which has just been vacated. The field workers will go into the hive with her, and live happy ever after.

Dayton, O.

AN EARLY TYPE OF STEAM-HEATED UNCAPPING-KNIFE

BY ARTHUR C. MILLER

The accompanying photograph is of a steam-heated uncapping-knife which the writer had made and experimented with in the summer of 1896. A rubber tube led from the steam-generator to the nipple nearest the handle, and the steam was allowed to blow freely from the other nipple. Later the second orifice was reduced with a



Arthur C. Miller's steam-heated uncapping-knife which he had made in 1896.

grooved plug. So far as the writer knows, it was the first steam-heated uncapping-knife in existence. It was far from being the perfect device now on the market, but it served to demonstrate the principle, also to inflict sundry burns, and was soon laid aside for a good old-fashioned Bingham knife. It was experimented with on two or three subsequent occasions, but was finally put among the "curios" of the "has been" collection which all good bee veterans possess.

Many persons saw this knife in operation when I first made it, and I exhibited it at Toronto several years ago, and I think at Amsterdam, N. Y., the year before. The man who made it for me is in business just across the street from this office. I recall

the date, because it was the same year I sold some real estate.

I do not use any knife now—too slow.

Providence, R. I.

[Mr. A. C. Miller was probably the first one to use steam for heating an uncapping-knife; at least we do not find any record of any earlier user. Some ten years afterward the steam uncapping-knife was used in Europe, as is seen in one of the European bee journals (*Apicoltore* for June, 1907, page 110, but the principle of heating a knife by steam for meat-chipping purposes was patented by O. Gardner, July 8, 1873). It was not till two years ago that a steam knife for uncapping was placed on the market in this country.

It is but fair to say that some like it and some do not. Steam will keep it hot continuously; but the rubber tubing, which is more or less in the way, and the extra weight of the knife, are objections with some. We have been testing the steam knife alongside of an ordinary Bingham knife dipped in a pan of hot water. Some of our boys prefer the steam knife, and others prefer to be unfettered by any attachment. We have about concluded that the man who starts with a steam knife would not use any other; and one who starts with one of the common kind, heated in a pan of hot water, may or may not want to change over to the steam knife. There are many (and they have worked the old way) who believe that the steam-heated uncapping-knife is miles ahead of any other form of uncapping-device.—ED.]

NUMBERING POSITIONS INSTEAD OF HIVES

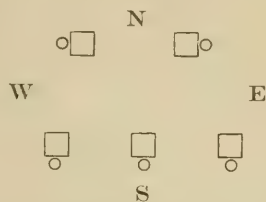
Record-Book Method of Numbering Hives

BY S. E. MILLER

On page 328, June 1, Dr. Miller is still hammering away on the hive-number question. I am surprised that he will continue fussing with numbers attached to the hives when there is a better and simpler way, and no hive numbers are needed except in the record-book. That one-inch nail driven one-third of its length into the hive, and two-thirds out—why, doctor, if there is a nail sticking out of a hive that I am working about I do not feel well until I get the hammer and pull it out. Then why bother with a tag of any kind that has to be changed every time there is a change of some kind, caused by swarming, etc.?

If Dr. Miller can pick a flaw in my system of numbering hives, let him fire away. Some years ago my method of arranging colonies in the apiary was illustrated in the

A B C of Bee Culture. They are arranged in groups of five colonies, and I may here state that I have made a slight change since—that is, I have no colonies facing north—thus:



The group in the southeast corner of the apiary is A (letter A), and the southeast hive is A1. The next west is A2; still west, A3. North of this is A4, and the one at the northeast is A5. B is the next group west of A, and the numbers 1 to 5 are repeated in each group, the groups being arranged like this:

etc.	K	J
I	H	G
F	E	D
C	B	A

Now, the hives are not numbered; but the spot where each hive stands has an imaginary number. These numbers are recorded in the book in alphabetical order, and are indexed for each group by cutting away a part of the page of each fifth set of leaves, similar to the way a dictionary is indexed.

B2 casts a swarm, and I see it issuing. I open the record at B, which is B1. I turn one leaf and have the record of B2 before me. At a glance I can see whether the queen is clipped. I see that she is, and proceed to the hive with a cage; find her, and place her in it. While the swarm is in the air I remove the colony and place a hive prepared as I see fit in its place, and lay the cage containing the queen at the entrance. I have simply set B2 a little out of the way for the present.

I now look over the yard and see a vacancy at G5. Note here that G5 has its proper place of record in the book, and it is also fixed in my mind so that if I should consult the book without being in sight of the apiary I see that G5 is marked vacant.

G5 is some little distance from B2, so that the new colony or swarm is not likely to locate the parent colony; and some of the field bees leaving G5 will likely return from the field to B2, thus further strengthening the new colony. Now for the record:

B2 is practically a new colony, but it is still B2, and will read like this: "June 10, cast swarm; have clipped queen; hived

her on 10 frames with 3-in. starters;" or, to make it as I do in practice, it would read: "6-10 east swm.; have el'p — hived on 10 frames with 3-in. starters." (A dash is my abbreviation for queen). I will now write the record for G5: "6-10, parent colony from B2; have 2 or more sealed queen-cells, and several unsealed;" or to abbreviate again, it would read: "6-10, par. col. B2; have 2 sc and several unsl."

Queen-cell is written c, and I may state that I have quite an extensive code of similar abbreviations.

In looking over the record some four or five days later I see when I come to G5 that I must, within a day or two, remove the surplus of queen-cells unless I want to take chances on having after swarming, which I certainly wish to avoid.

It will be readily seen that this method may be easily adapted to any arrangement of hives. If placed in straight rows the numbers can run 1, 2, 3, up to any number.

By preserving the records it is possible to trace back any colony to its original stock or parentage, provided there has been no break in the record by supersedure unknown to the beekeeper. This would not make any material difference unless superseded by a queen of inferior stock entering the hive, and killing the reigning queen, which, I dare say, does not occur frequently.

Now, Dr. Miller, do not let those tags worry you any longer. If my memory serves me well it was your writing which caused me to discard slates and adopt the book record. Why, then, do you not make use of the book to its fullest advantage and greatest availability? I can locate any colony in the apiary from any direction. It is not necessary to walk around to the side or end of the hive that the number is on. There is no number on it.

Rhineland, Mo., June 10.

[If there were a hundred or more colonies in an apiary this scheme would hardly be practicable. Anyhow why not use your scheme and number tags both?—Ed.]

BEEKEEPING IN JAMAICA

Drouth Causing very Poor Crops

BY F. A. HOOPER.

This country, once famous for the production of fine honey, and in large quantities, is now producing less and less each year. Up to the year previous to that of the earthquake, which occurred in 1907 (when the city of Kingston was totally de-

stroyed and hundreds of the inhabitants of the island perished), a failure of the honey crop was unknown.

This year, 1912, is the worst that beekeepers have experienced since beekeeping was introduced in the island on a commercial scale by Hooper Bros. in 1892.

Taking an average of the whole island, each colony has produced only 14 lbs. of extracted honey this season. Beekeepers are now anxious to know if the poor seasons will continue as the years roll on. In my opinion we have arrived at the climax, and beekeepers will see a change for the better, commencing next year. Our weather prophet predicted five years of drouth would follow the earthquake, and so far he is right, especially this year.

During our best months for honey, which are February, March, and April, the weather was so dry that there was not sufficient moisture in the earth and atmosphere; hence the few flowers that did open had no nectar. If we had had our usual rainfall last year, the early drouth this year would not have affected the honey crop, for there would have been sufficient moisture in the earth; but as it was, even the deep-rooted trees failed to bloom.

Beekeepers need not fear about not ever again securing large yields of honey. The flowering plants and trees are all alive, and are just waiting for the regular rainfall to bloom again as they have done before.

The rivers which are now mere streams will be rivers again; and the streams which are now nearly all dry will again trickle down the mountain sides. It is only a matter of a little patience.

Four Paths, Clarendon, Jamaica.

THE AVERAGE CROP IN CALIFORNIA

Are Mr. Chadwick's Figures Too High?

BY J. W. KALFUS

On page 297, May 15, P. C. Chadwick gives some figures in regard to the honey yield of California. I am afraid if his figures could be proven it would cause such a rush to our State that there would not be standing room for beekeepers. While I have heard that 1884 was an exceptionally good year, we must not overlook the fact that that was a long time ago, and there were probably not one-fourth as many bees in the country as at present. However, I am of the opinion there are not many beekeepers in other States, at least, who will believe that 700-lb. story. In 1905 I was living at San Luis Obispo, and, of course, can not say as to what the yield was in

Southern California; but I know of a number of men whose crop fell short of 300 lbs. average. I heard of several men who got 300 lbs., and one who got 350; but I afterward heard he extracted his honey so green the cans "blew up" and he had to put it back in the tank and ripen it. I have no doubt that a few apiaries made more than the 350 mark, but they are few and far between. My average for 1905 was 52 lbs. per colony. In regard to his estimate of 100 lbs. average, I think he has put that entirely too high. In making these estimates for publication I think we should be very careful, and not put them too high and thereby mislead any beekeepers who may want to settle among us. Now, I don't want any one to think I am trying to keep other men out, for I am not; but I believe in giving the facts just as they exist; and if we have no way of knowing the facts we had better put the figures a little below the average than above; and then if any eastern beekeepers should settle among us, and not do quite as well as they expect, they would always be blaming us for misrepresenting things.

During the last five years I had an apiary in Los Angeles County in what is considered one of the best sage locations in the State, and my average for the five years was 71 lbs. per colony. But methinks I hear Brother Chadwick say, "The trouble was with you. You don't know how to keep bees." While I admit this is true to a great extent, still when I look around me and see such men as L. E. Mercer, M. H. Mendleson, and J. F. McIntyre, who have not done any better in that time, I am led to think the fault is not altogether my own. I mention these men because they are among the foremost beekeepers of the country, and are well known to the readers of *GLEANNINGS*. About a year ago Mr. L. L. Andrews, of Corona, who has several hundred colonies, wrote me his average yield for five years was 60 lbs.; and Mr. Geo. L. Emerson, who operates several hundred colonies at Fullerton, wrote me his average for the same length of time was 58 lbs. I also had letters from several other men in the Southern part of the State whose names I can not recall; but not one of them claimed an average of 100 lbs. There is no doubt but there are some men who have had an average of 100 lbs. for the past five years; but there are so many whose average has fallen below 50 that it cuts their average down considerably. For my part I think an average of 60 lbs. for Southern California during the last five years is nearer correct than 100.

Bishop, Cal.

[Mr. Chadwick replies:]

The chief apprehension in the above criticism seems to be that it might cause an influx of Eastern beekeepers who would be disappointed in not getting so high an average after casting their lot with us. Referring back to the issue above mentioned, note this sentence, "taking into consideration that some years, outside of the orange and alfalfa districts, there is practically a total failure."

This estimate was based on information gathered from many beekeepers from various points, together with the experience and observation of the writer—not for a period of five years, but since 1884. Quite true, conditions have changed since the latter date, and no such phenomenal yield may be expected again, because of a lack of flora then bountiful, and because there are many more bees now.

Mr. Kalfus quotes Mr. Geo. L. Emerson in producing his proof, Mr. Emerson being the man who informed me of the 700-lb. yield for Orange Co. in 1884, and I have no reason to question so eminent an authority.

My average for the past five years has been under 100 lbs.; but for the past seven years, including 1905, it exceeds 100 lbs., though in 1905 my average was only 250 lbs., while others, to my knowledge, more favorably located for a late flow, secured nearly 400.

The occasional (not frequent) heavy seasons are what runs up the average, and should not be taken by any means as a season's average.

These heavy seasons are what keeps up the hopes of the California beekeeper who waits for the realization through seasons of dearth and heavy loss and is finally rewarded when his forces are depleted, and in the poorest possible condition to realize the most from them. I still believe my estimation is not far from correct; but it must not be forgotten that this includes some *very* thin and a *few* very fat seasons.

P. C. CHADWICK.

AN ANALYSIS OF BEE-BREAD

BY RUTH L. PHILLIPS

The following analysis of bee-bread was made by me during the summer of 1911 in order to ascertain the nature of this substance and its relation to the growth changes in the nerve cells of the ordinary Italian bee.

As one would expect, there is a large proportion of water, 12.75 per cent, in bee-bread. The bulk of the substance is pro-

teid, the nitrogenous portion of the food. Of this there is a percentage of 64.4 per cent. This high proteid content is not strange when we consider that pollen is mainly protoplasm, a substance largely made up of proteid. There are 9.23 per cent of fat. This fat is remarkable in that some of the oils composing it are very volatile, and have a penetrating disagreeable odor. There is a sugar content of 9.5 per cent. This is 1.3 per cent cane sugar and 8.2 per cent sucrose. A large part of this sugar comes from the honey used in mixing the bee-bread. An analysis of pollen alone would be necessary to ascertain the exact amount. I was surprised to find considerable wax, 3 to 5 per cent, in the bread. Dr. E. F. Phillips believes this to have come from careless removal of the pollen from the cells in which it is stored. However, as I was particular to avoid that very thing I believe that most of the wax was a part of the bread. Dr. Phillips maintains that pollen will keep without preservatives being used. I endeavored to preserve dandelion pollen in the laboratory, but failed because of mold, and it would seem that the controlled conditions in the laboratory would be better adapted for keeping pollen than those obtaining in the hive. I therefore believe the wax is used as a preservative.

The following is a tabulated *resume* of the analysis:

Water, 12.75 per cent; proteid, 64.4 per cent; fat, 9.23 per cent; sugar, 9.5 per cent (cane sugar, 1.3 per cent; sucrose, 8.2 per cent); wax, 3 to 5.00 per cent.

Syracuse, N. Y.

WHY THE BEES DID NOT EAT THE FRUIT

BY BENJAMIN W. DOUGLASS

[Mr. Douglass was formerly State Entomologist for Indiana. Politics threw him out of office. He is now largely engaged in fruit-growing, and is editor of *The American Horticulturist*, published at Indianapolis. He ought to know what he is talking about, and does.—Ed.]

Bill was always a hard person to get along with, and all of his neighbors avoided contact with him just as much as possible; so I was not unprepared when he came to me with his tale of woe. I keep bees, and Bill has a few peach trees and some grapevines. I also have a few peach trees—in fact, several thousand more than Bill; but that does not keep Bill from thinking that he is the original and only fruit grower. Bill was angry. His peaches were being eaten up by my bees, and his grapes were being ruined. Something had to be

done about it. His entire crop was threatened with destruction, and he demanded justice. I realized that I faced a diplomatic problem, and so I proceeded with caution.

"Bill," said I, "how many times did you spray your peaches this spring?"

"Nary a time. My peaches don't need sprayin'. They was always all right until you brought your pesky bees out here."

"Well," I pursued, "was not this past season a particularly severe one on peaches, inasmuch as the warm wet weather has caused them to rot more than usual?" He admitted that it was. "Now, Bill," I said, "did you ever actually see a bee eating a hole in a perfectly good peach?"

Bill is fairly truthful, particularly when he suspects that you have the drop on him, and he hesitatingly admitted that he had never seen a bee at work on a perfectly sound peach, but that their first work was, without exception, at a rotten spot where the skin was soft or even broken. With this admission I took the liberty of crowding Bill into a corner where he could not get away, and proceeded to give him a lecture on the way bees "damage" fruit.

It is practically impossible for a honey-bee to "eat" through the skin of any of our common fruits; and if they do any damage it is purely secondary in nature. If the fruit grower would turn his attention to the proper methods of caring for his crop he would find that the bees will not bother him; and in place of fighting the beekeeper he would welcome him to his locality.

The experiment has been often tried, of keeping hungry bees in a cage with some perfect fruit. They will not touch it. This is not because of any angelic disposition on the part of the bees, nor because they are possessed of more than human sense of property rights, but simply because the Creator did not intend that bees should eat hard things; and the skin of fruits is hard. The bee's mouth is a soft structure, built for sucking the nectar of flowers. It would be quite impossible for such a mouth to "bite." Imagine boring a hole in an apple with a soft-rubber tube. That is what a bee would have to do if it did not depend on other insects to break the skin on it first. Some fruit growers argue that bees "sting" the fruit and then suck the juice. While such a performance is anatomically possible, there is no record that bees ever use their sting for this purpose.

Of course, Bill offered objections from time to time, and in the end I do not think that he was altogether convinced that the peaches had not been "eaten" by my bees. Just to keep peace in the family I gave him a couple of sections of new honey, and he

went home feeling satisfied that he had done his duty by his orchard. At the same time I knew that a spray-pump was lying out back of his barn, rusty with neglect. His peaches didn't need it. He had tried it, and he knew.

SPRAYING IN BLOOM KILLS BEES

Half the Bees in Pecos Valley, N. M., Killed this Spring

BY R. B. SLEASE

The editorial, June 15, on spraying fruit trees while in bloom, makes my blood boil. Of course, these men claim that, under certain atmospheric conditions, the spraying did no harm to the bees. Now, there are only three conditions under which it would not hurt bees: 1. Plenty of other flowers that bees would rather work on; 2. Weather so cold that the bees were not working; 3. Weather too wet for bees to be out. Now I have had bees right beside 600 acres of orchard for the past 15 years, and the last 9 years the orchardists have been spraying, and during this time I have had a little experience. In 1904 they tried spraying in bloom. I lost about half of my bees and brood, but only about 25 colonies perished outright. Bees did not get in shape to do any thing till Aug. 1. After this I did not have any serious loss (as the orchardists did not spray quite so early) till 1909, when I lost about 25 or 30 per cent of my bees and brood, and some 30 good queens; but by requeening promptly I lost only a few colonies, and the bees got in shape to make honey by July 10.

In 1910 and 1911 I had some loss, but not very serious. In 1912 I went over all my bees the first of fruit bloom, and found I had 163 hives in fair condition, with from two to six frames of brood. Now (July 2) I have 121 hives with some bees in. At least a third have a patch of brood from two inches in diameter to as large as the hand. The rest have from half a frame to six frames of brood.

I have never had foul brood in my yard, and find dead brood only when fruit trees are sprayed in bloom. I then find plenty of dead bees all over the yard. I had some chilled brood one spring when we had a cold wave and snowstorm April 20 and 21, 1907.

So far as I can learn, at least half of the bees in Pecos Valley were killed by spraying this spring. If spraying in bloom does not kill bees in New South Wales it is very different from the Pecos Valley of New Mexico.

Roswell, N. M., July 2.

HIVES NUMBERED BY POSITION OCCUPIED

BY LOUIS MACEY

I see Mr. Scholl, May 15, is voicing the need of a satisfactory hive number "that is cheap and readily transferrable from one hive to another."

When I got above 20 hives the "identity" question began to bother me, and I went to work and painted numbers on the hive fronts in consecutive order as they then stood; but as time went on, and I found myself putting colony No. 1 into hive No. 32, so as to clean the propolis and burr combs out of their old home, and setting hive 6 away off in another place, and the swarm in a hive numbered 41 on the old stand, etc., I found I was getting a good many different kinds of mixups, besides giving my apiary a very much jumbled-up appearance.

Some of our beemen tell us they are doing such a rushing "big business" that they can't afford to bother with any such thing as a record-book; but I think most of us find time to keep track of our queens and the different colonies and their changes; and in any case the main thing we want to identify is not the hive but the *hive location*, or what some call the *hive stand*.

I have evolved a plan for this that is simple, inexpensive, convenient, and as nearly everlasting as the apiary itself; moreover, this number automatically puts itself on. My hives are in pairs in parallel rows, "breaking joints" like this:

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□ □      □ □      □ □      □ □      □ □
    □ □      □ □      □ □      □ □
□ □      □ □      □ □      □ □      □ □

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Each hive has two numbers—an individual hive number and a *row* number. That the hive number comes first is all I have to remember. The north row is 1, and the first hive is 1-1, or "first hive, first row;" and the 14th hive in the first row automatically numbers itself 14-1, as the next to the last hive likewise proclaims itself 13-3.

I occasionally paint the number on some of the alighting-boards to save counting; but unless the rows are very long, that is unnecessary. I now have six rows, and find it easy to increase either the length or the number of the rows without throwing the numbers "out o' kilter."

The even-numbered hive is always the east hive of the pair, and the odd numbers are always the west hives in each pair.

There are also several other advantages; and the longer I use this plan the better I like it; I don't expect it to suit all conditions, but give it for all it is worth.

North Platte, Neb.

Heads of Grain from Different Fields

Hive Numbers Printed on White Enameled Metal Tags

On page 296 Mr. Scholl asks for a hive number which is satisfactory besides being cheap and durable. I have for some time been using a number of my own make which calls for a very little outlay of either time or money, and which has given entire satisfaction. I got a piece of heavy galvanized tin, and with a pair of tin shears I cut it into rectangular pieces about $2\frac{1}{2} \times 3\frac{1}{2}$ in. (though for numbers of more than two figures the tags would have to be longer). I rounded off the sharp corners; then with a large nail (about 16 penny) I punched a hole in the middle of one of the long sides about $\frac{1}{4}$ inch from the edge. I then dipped them in white enamel paint and laid them on a board to dry, with the rough edge of the holes up. The numbers should go on that side, as the tags will then lie flat against the front of the hive. When the enamel is dry, but before it gets hard, paint the numbers in black with a small marking-brush. A little practice on a board or a paper before beginning on the tags will result in better figures.

To hang on the hive, select small wire nails, the heads of which will just pass smoothly through the holes in the tags. Drive the nails into the hive fronts so that about $\frac{1}{4}$ inch projects. The rough edge of the hole in the tag prevents the latter from jarring or blowing off, yet the tags can be slipped off or on by the apiarist in a moment.

Louisville, Ky., May 28. J. B. CHRISLER.

Hiving a Swarm Quickly

Seeing an account of hiving a swarm by an expert, in the May 1st number of GLEANINGS leads me to write an account of the quickest work in hiving I have ever done. On May 4, this year, I was called on the telephone and informed that a large swarm had settled in the rear of a friend's residence about three city blocks from my home, and that the bees, being strays, were mine if I would have them. I had an engagement in less than an hour, so my first idea was to decline the offered bees because the time was so short; but the bee fever was too strong to be overcome, though I have had it for more than forty years, so I rushed home from my office, quickly secured a frame of unsealed brood, laid it flat on the bottom of a very light box having a hinged lid on it, walked rapidly to the scene of action, where I found the swarm clustered on a small branch of a chinaberry tree, in easy reach. Without veil or smoker I quickly cut off the limb without jarring off a single bee; laid the cluster in the box still on the limb, closed the lid, and away I went with my prize. Arriving home I secured a single story, filled with empty combs; placed the limb over the frames, after having inserted the frame of unsealed brood; gave them a slight shake, and after some of the bees had begun entering thus from the top, and when they got well to going, I shook the remainder off the chinaberry limbs, and they were in the hive almost instantly. There remained nothing but to put on the top and rush to the meeting, where I arrived with five minutes to spare.

It is well worth while to emphasize the use of a light box, made of tough wood, and hardly as thick as pasteboard to catch and carry to the proper place a swarm, and also the great advantage of a frame of unsealed brood laid flat on the bottom. I just happened to have this box, and it had never occurred to me to use it this way until this occasion arose.

Carrollton, Ga., May 14. L. K. SMITH.

A Quick Way of Killing a Surplus of Drones

I have read in the bee journals a description of a queen-sieve and its uses, but never saw a drone-sieve described, although the occasion for its use may arise in every apiary sometimes. Here is one that I have been using with good results. I nail a queen-excluder to the bottom of an empty hive body, and set it on top of another empty hive body close to the hive to be operated on, and shake into this sieve bees and drones from every comb except the queen, and cover it as quickly as possible. After replacing the combs I put a Porter bee-escape on

top, and on this the sieve with the drones, after having brushed off the bees that have clustered on the under side of the sieve. Next morning you find all the bees that remained with the drones have passed down the escape, and the drones on their backs kicking the bucket. To shorten the agony of death I put the sieve over a teaspoonful of burning sulphur, and in a minute it's all over.

Monterey, Cal., May 14. WM. A. SEDDING.

Queens Caged in a Hive

1. Is it safe to keep ten or fifteen untested queens in an upper story (caged) separated from the old queen by an excluder for, say, a week or ten days, until convenient to make nuclei? 2. Is there any preventive or cure for white diarrhea in young chickens?

Slate River, Ont., May 15. J. M. MUNRO.

[The longer you keep queens caged, the worse it is for them. Sometimes they will die in less than a week, and again they will live a month or so. It depends a good deal upon the bees of the hive, and also upon the vitality of queens themselves.]

The poultry journals for a year or two past have been full of remedies for the white diarrhea, but I believe the general decision has been that prevention is better than cure. I have never had any experience with it, and my impression is that if the chickens are put often enough on new ground, not too many in one lot, and kept out in the open air and in the sunshine as much as possible, there will be no such trouble. Filthy quarters and rearing large numbers of chickens on the same ground are pretty sure to start diseases of this sort.—A. I. R.]

Dual Introduction

Please give the plan of dual queen introduction as invented by Mr. Alexander, and printed a few years ago in GLEANINGS. JOSEPH BRAUN.

New York, June 30.

[Briefly, the dual plan of introduction is as follows: You introduce a virgin queen by the usual cage plan, and at the same time cage another virgin in the hive with a piece of tin over the candy. When the first virgin has been released, and is laying, remove her, and at the same time remove the tin from the candy of the other cage. Then cage a third virgin in the hive with tin over the candy, etc.]

If you have reference to the plural-queen plan, as mentioned by Mr. Alexander in his book, we may say that this is quite a complicated method; and, although it has been tried out by a good many beekeepers for several years, there is practically no one in the country who is following it at the present time, the reason being that in almost every case the surplus queens will be killed after the honey-flow.—Ed.]

A Stubborn Colony that Will Not Accept an Introduced Queen

I have a colony of bees that are kind and gentle. They never seem inclined to sting, but they simply won't have an Italian queen with them. Last year I purchased three tested Italian queens and introduced them according to directions on the cage, and a few days after they released them we would find them carried out dead in the drone-trap.

Last fall I purchased one of your A B C books and went according to directions. This spring I got a tested Italian queen. About two months ago they let her stay with them about four weeks, then I found her carried out dead. As I am anxious to get a colony of Italians, two weeks ago to-day I received another queen, and all seemed well until today, when they carried her out; but I happened to be there, and rescued her all but dead. Now I write to you for advice. There is no queen in the hive, as I looked them over several times. Before they killed the first one this spring they started nine queen-cells. Some of them were sealed over when she died. They are a good quality of hybrids.

Marietta, Ohio, July 2. GEORGE AMANN.

[One in a great while we run across a colony like the one you describe, that seems determined to kill every introduced queen within a short time after she gets to laying. We recall we once had such a col-

ony; and as often as we would introduce a queen they would kill her as soon as she had laid a few eggs. We finally let them rear a queen of their own from the eggs left by the last queen; and this one they allowed to stay in the hive; but why, we can not understand. We do not know of any thing better you can do than to let this colony raise a queen of its own. If they kill her, we would brimstone them. Hybrid colonies are more apt to cut up capers of this kind than pure bees of either race. —ED.]

Uniting by the Newspaper Plan

I have ten colonies of bees—six strong, one fair, and three small ones, about a gallon or a gallon and a half, and I want to join the fair one and one of the small ones and make a strong one out of it, and the other two together will make a fair or strong one. The one that I am going to join is in an eight-frame hive I made myself. It has a movable bottom. The fair one is in an eight-frame bought hive, and the other two are in a box. The one that I am going to join first is in the hive that I made. I am going to make a hole in the bottom about two inches across, and put it on top of the small one in the box, and put a hole in the lid of the box about the same size, with a screen on top of the box, and set the other hive on top of it, and leave it on two or three days or a week—long enough so that the bees on top will have the same smell as the one in the box, and then take the screen off and put a perforated zinc so that the bees will go from the box to the hive on top, then the queen can't go up; then if they don't go up I can shut up the bottom doorway in the box, and they will have to go up to fly after they get joined. Then I want to transfer them to a ten-frame double-wall hive. When will it be best to join and transfer them?

The other two, I want to put one in the box with the one in the eight-frame bought hive. What is the best way to join them? The ones that I want to transfer into the double-walled hive, will it be best to put them in the frame full of foundation or the frame with the bees and combs on?

Leigh, Neb., June 26.

WM. F. GLANDT.

[We are not sure but that it would be better for you to follow the newspaper plan rather than the wire-cloth plan which you refer to. The newspaper plan is really simpler. Remove the cover of the lower hive, place a single thickness of newspaper on top, and set the second hive on top minus the bottom-board. By the time the bees gnaw through the paper the uniting will be so carefully and slowly done that there will be practically no fighting, and the moved bees, says Dr. Miller, will stay where they are put. A little later you can easily transfer the bees to a 10-frame hive by picking out 10 of the best combs that contain brood and some honey, and merely lifting them into the ten-frame hive. Then shake the bees from the rest of the combs from the empty hive before the entrance of the ten-frame hive which should now stand on the old stand.]

Regarding the other colony that you want to transfer to the double-walled hive, if the combs are straight and practically all worker size of cells, it would not be necessary for you to shake the bees on new frames of foundation; although if there were any trace of disease or suspicious brood in the old combs it would undoubtedly pay you to shake the bees on to the new foundation.—ED.]

Supersedure of Queens; How to Recognize Supersedure Cells from Swarming Cells

I have a colony that is an exceedingly powerful one, built up from a swarm in the latter part of May. They began working in splendid style, drawing out foundation, and then for some unaccountable reason they began building queen-cells, which I as persistently continued to cut out. As I know now, it was a case of supersedure. I found the queen, only a year old, clipped, ten or twelve feet in front of the hive one day, surrounded by only a half-dozen bees, and as she seemed to be in good condition I went through the hive very carefully, cut out every appearance of a cell and restored her. There was absolutely no pretense of swarming, as one or two people were in the vicinity of the hive all day. About three weeks later I found the clipped queen lying in front of the hive dead; and in going through the colony I found no eggs, no queen-cells, and no queen. Naturally I then concluded the

queen had died, and that there was nothing left in the hive from which to raise a young queen. Imagine my surprise the other day, after putting the bees through a "strainer," to find a magnificent young queen just beginning to lay. Where they raised her, and how they did it, I can not conceive, as I made it a custom to go over every comb in the hive once a week, and I did this very thoroughly and got out every cell I could find.

The new queen I introduced by caging her on the face of the comb, and every thing is lovely. The bees are working splendidly. In the meantime, I could not make up my mind to destroy the young queen, so gave her a couple of sections of honey and young bees, and started her to housekeeping in another hive.

This matter of supersedure is one of great interest to beekeepers, and incidentally must be one of the most puzzling problems by which the beekeeper is confronted—not as to why the bees supersede the queen, but rather how the beekeeper is to determine whether the bees are building cells with the intention of swarming or with the intention of superseding the old queen.

Detroit, Mich., July 10.

J. M. FRANCIS.

[Supersedure may take place almost any time of the year, or at any time when the queen shows disposition to fail. This failure may be due to old age, to injury received while in the mail, or to rough treatment she receives at the time she is introduced.]

It is not possible to detect the difference in appearance between supersedure cells and swarming cells; but when we find cells built during the swarming season we naturally conclude that they are swarming cells—that is, providing there is a good queen in the hive already. But when we find a laying queen apparently failing, and nicely built cells in the hive at any other time of year, we usually call such cells supersedure cells.

The size of worker bees will vary a good deal according to conditions. During the midst of a heavy honey-flow, and especially at night, after the bees are quiet in the hive, they will appear to be very large, because they are well filled with honey, and putting it through the process of digestion—or, more exactly, inversion.

The young queen you found after putting the bees through a "strainer" (perforated zinc) was probably from some cell which you missed.—ED.]

Moths in Comb Honey after it Leaves the Hives

Dr. Miller says, page 36, Jan. 15, "You said moths are liable to lay eggs in S. D. House's combs, or his nice comb honey, after either has been taken from the hives. I supposed his nice comb honey was in sections, so I ventured the guess he never had an egg laid in them after they were taken off, since the moths don't lay eggs in comb honey here after it is taken from the hive. J. E. Crane practically says they do with him. The question now is whether my, moths or Bro. Crane's are the exceptional ones."

I can not answer as to whose moths are the exceptional ones; but if Mr. Crane's are exceptional, so are mine; for nearly all my trouble consists in trying to keep the moths out after the honey is off the hive. In the yard they never bother unless I am so careless as to leave a colony for some time in a weakened condition. But in the house, especially after about the middle of July, it's a fright all the time. Of course it is the larger moth that gives me the trouble in the comb honey, the smaller variety working on old combs alone. But these large moths will get in and lay their eggs all around the wood of the sections, and many times right on the face of the combs.

My only salvation is to use sulphur at least once a week, and even then they sometimes get the better of me in some corner that I have overlooked.

HONEY AS A MEDICINE.

Yes, honey is being used for medicine, and people are not so slow after all in learning to use it and to appreciate it for that purpose. A large number of my customers use it for medicine alone. I attribute it to the fact that, when selling honey through the neighborhood, I have always mentioned in particular that honey is one of the best cough and sore throat remedies known. I often mention, too, that honey is cheaper than butter if used in place of that commodity, and that the food value of it is greater than that of almost any other food. By means of

this and other advertising I number probably two-thirds of the people in this community among my honey customers, although there are several other beekeepers in this vicinity, and some of them sell their extracted honey two cents a pound cheaper than I do.

Barryton, Mich.

LEON C. WHEELER.

The Proportion of Sugar to Water in Nectar

I should like to know how much evaporation is to nectar gathered from clover. We have a hive on the scales that is running in an average of ten pounds a day; but it lightens up a pound and a half each night. Would that be equal to eight pounds and a half a day, or not?

Brook Park, Minn., June 29.

BELL BROS.

[It is not possible to give a definite answer to this question, for the simple reason that so much depends upon general conditions. Some nectars are very much thinner than others, and of course there would have to be more evaporation or ripening in order to reduce it down to a honey that will run between eleven and twelve pounds to the gallon. Ordinary nectar, we should say, would run anywhere from two to ten parts of water to one part of solid saccharine matter. The evaporation that you discover in your hive, where they gather ten pounds per day and lose a pound and a half at night, we should say was very nearly normal. Of course, not all evaporation takes place in twenty-four hours.

It is possible and probable that some of the excess of water is discharged by the bees while on the wing before reaching the hive. You will find some interesting facts bearing upon this subject by referring to *CLEANINGS* for Sept. 1, page 514, and Sept. 15, page 549, 1911. Refer to what is said on the subject of feeding outdoors sweetened water of a sugar of about nine parts water to one of sugar.—ED.]

To Get a Swarm Out of a Box

A drone-trap I bought last year let the queen through every time, and the two last swarms I saved I put the perforated zinc over it. Can you tell me which is the best way to get a swarm out of an old box now? I intend to put the combs in the new hive. I should like to get new queens; but it will be a hard thing to put them in the new hive that I hived this summer, for they build the combs crosswise. I had no foundation.

Ft. Wayne, Ind., June 30. JNO. W. HOEVEL.

[As the queen and drone traps all have standard width of perforation, your letter shows either that the queen in question was abnormally small or else that the trap had been bent or injured in some way, allowing an opening for the queen to get through.

If we were in your place we would treat the hive in which the combs are built crosswise just as though it were a box hive, and drum the bees out according to the plan described in the enclosed circular on transferring bees.—ED.]

When the Giving of Foundation Causes Swarming

I have six colonies of bees; and, although the past winter on Long Island was the coldest we have had for thirty years, my bees came through the winter in better condition than ever before. I did something I never did before—namely, left the entrance wide open and put one super on the top of each hive. The result has been at this date, May 23, that I have had more swarming than ever before. A swarm has issued from each hive, and in some cases two already.

What is the best way for me to prevent swarming? I use the ordinary eight-frame dovetailed hive, and do not think much of it. It seems to me that a Jumbo hive would prevent swarming. I understand that the Dadants do not have swarming, but do not know what they use.

E. GRISWOLD.

Great Neck Station, N. Y., May 23.

[Mr. A. B. Marchant, of Sumatra, Fla., one of the largest honey-producers in the United States, believes that the giving of supers of foundation will start swarming when the giving of supers of *drawn combs* will check it. Beginners will often give section supers to a colony before it is strong enough to enter. This may or may not have a tendency to check swarming; but nothing is accomplished by giving supers too soon. On the other hand, when a weak colony has filled its brood-nest clear full of

honey, the giving of a super of sections will not help much. If the colony is too weak to go into a section super, a better way is to take away the combs that are full, providing they contain no brood, and substitute empty combs. Or this may be done: Give a *s. allow* extracting super of *drawn combs*; but don't expect a weak colony to draw out foundation in sections or shallow frames unless there is a very strong honey flow on, for they will probably sulk just as soon as they get the brood nest full, and then swarm. Before bees will enter a super containing foundation the colony must be strong enough so that the super will be filled with bees. And even a strong colony will refuse to go up unless there is plenty of bottom ventilation, and it may even be necessary to set the hive up on four blocks.

The question whether the hive is eight or ten frame or a jumbo, in your particular case, had nothing to do with swarming, except that the jumbo or ten-frame would have a little more storage capacity, and according as it is larger it would delay swarming.—ED.]

Springs to Hold the Brood-frames Close Together

As I have had a great deal of trouble in reaching the brood-chamber, owing to the fact that the frames have a tendency to spread out and fill up the hive until there is no room to break the first frame loose when cutting it out, I have adopted the following plan: I take two sections, cut them down to the length and width of the spacing part of the frames, and tack them on the hive body so that the frames will come against them, making a full beespace between the top-bar and the body. On the other side I use super springs to press the frames together. I cut the spring long enough to make the pressure half way on the spacing part of the frame. I also equip my shallow supers in the same way.

Ashville, Ala.

W. D. PRICKETT.

[It is seldom or never necessary to use springs to hold brood-frames together; and although springs are very useful in a comb-honey super, we think the more you use the arrangement you describe, the less you will like it. Mr. Danzenbaker provided springs in the brood-chamber of his hive; but in actual practice we do not use springs in the brood-chamber, for we consider them not only unnecessary but too much extra machinery to handle every time the hive is opened.—ED.]

Stock Eat Sweet Clover Down to the Stubble

I noticed on p. 324, May 15, that the stock referred to do not eat sweet clover readily. In this vicinity all kinds of stock eat it down to the ground, and the only trouble is that there is not more of it to be eaten. This, however, is a dry locality, and there is not much natural pasture. The plant does not grow on the high land here, but along creeks and in canyons.

Mohler, Wash., May 25.

To the Discouraged

Come, you discouraged ones; why should you murmur,

Mourning for bees that will gather no more?

Look not at hives that are piled by the corncrib;
Smell not the odor that comes through the door.

Clean up the old hives; of dead bees make compost;
Bury them well in the rich garden soil;

You can replace them by carefully trying—
A little less mourning, a little more toil.

See! the white clover lies thick on the hillside;

Basswoods so budded the branches will bend;
Harvests like this may be often repeated;

Do not be thinking of what might have been.

Gather the combs for a careful assorting;

Melt up the poor ones and care for the rest;

Keep your heart fixed on the main proposition—

Mayhap these losses were all for the best.

One thing is certain; the prices of honey

Now will be better than ever before;

Work, in the future, may bring you more money;

Then work with the vim and the courage of
yore.

Bridgeport, Wis., June 13. HARRY LATHROP.

Our Homes

A. I. Root

CHARACTER BUILDING; SOME SUGGESTIONS TO EMPLOYEES OF THE A. I. ROOT CO.

Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

My good friends, I suppose every one of you would be glad to get better pay; and I want to tell you that the A. I. Root Co. would *also* be glad to see you get better pay, and this is why I offer some suggestions. First, I want you to read the following, which I clip from the Chicago *Advance*:

A few years ago a prosperous business corporation applied to a bank president whom we knew, asking him to recommend to the house a young man "who could be trusted." The reply was, "Every Wednesday evening at the hour when the church bells are ringing a young man passes my house on his way to the prayer-meeting of his church. I like that. If I were you I would look him up." And the business man did look him up, and made him an offer of double the salary he had been receiving—and he is now getting more than he had ever dreamed of. We know the parties, and knew of the incident at the time. The prayer-meeting habit is a valuable business asset—better in some respects than a college diploma. Another incident came to our knowledge in regard to the week-night service. One of our city pastors recently went into the wholesale section of the city and asked to see one of his "boys." "Have we any of your church members here?" said the manager. "Yes, six." "Are any of them Christian Endeavorers?" "Four." "How many go to the Wednesday night prayer-meeting?" "One." The next morning that "one" was sent to a distant State upon an errand calculated to test his honesty, ability, and zeal. On his return, having successfully performed his duty, his opportunities were enlarged and his salary quadrupled. The prayer-meeting habit is a good asset; but the Sunday-baseball passion will cost any young employee dear. We know a bank president in the West who dismissed a clerk for attending the races upon a track in which the president was himself a stockholder. The business man is made or marred usually before he is twenty-five.

The above is a fair illustration of the way in which clean straight young men often get an advance in wages. I do not by any means recommend that you should go to prayer-meeting or Sunday-school, nor even to church, solely with the idea of getting *better pay*; but a consideration of the matter may prove to be at least one incentive. The habit of these young men had built up character; and this world needs clean men and boys more just now than ever before.

Now, in order to get back to what I have had in mind for some time past, will you excuse me if I mention that, when the whistle blows at quitting time, quite a number of our employees get out their pipes and tobacco just as soon as they are off our premises? There is a very good reason, that I need not mention, why it would be unwise to have smoking of any sort around the combustible material that most of you

work with. From the clipping I have given you; you will see how a small matter fixed the wage value of a man or boy. Really, do you think *any* institution would pay *more* for the boy who lights a pipe every day when he starts home for dinner? Would not almost any employer of men decide against the boy who smokes a pipe?

Our State of Ohio has passed stringent laws, as you may know, against selling or furnishing tobacco to boys; and it is now pretty well known that boys who are ambitious to excel in physical strength have cut off their tobacco, or else never used it. Our schools and colleges not only give us abundant evidence of the effect that tobacco has on the intellect, but I believe it is generally conceded that tobacco in any form is a stepping-stone to stronger stimulants.

What has particularly called my attention to this matter just now, is the statement that a boy in our employ recently took his pipe out of his mouth and went around to other boys, big and little, and urged them to "take a pull" at his pipe—the pipe he had just taken out of his tobacco-stained and dirty mouth! Now, most of you know (better than I do) how much truth there is in it, and it prompts me to appeal to your best and most manly sentiments in regard to the matter. I think, if you will look about you, you will find that as a rule our leading men who occupy high and important places are not tobacco-users. Abraham Lincoln never used tobacco. Roosevelt does not use it in any shape or manner; neither does Bryan, and it is very unlikely that either of them ever will use it.

When we recently installed convenient and pleasant closets for men in our different buildings, a kind request was posted up, not to spit tobacco juice on the floor nor in the corners of the room. Notwithstanding this, it has pained me to see the disagreeable accumulation, little by little, more or less, in every one of our men's closets.

Let me ask in closing, dear friends (for I hope you are all my friends), will you not consider the matter, and help your employers in their efforts to keep up the reputation our establishment has long enjoyed, for not only being up to date in every sense of the word, but for setting an example of cleanliness and decency?

I have given you in the above a word-picture of two boys—one on his way to

prayer-meeting, which he attends regularly, and probably *invites others* to come with him. The other boy goes along the street puffing a pipe. He is not going to prayer-meeting, however, you may be sure; but he takes his pipe out of his mouth, and also "invites others" to take a pull on it. Which of the two boys will have the better chance, and get the best pay for his services here in this world? And, finally, when he comes to die, what then?

There is no man that hath left house or parents or brethren or wife or children, for the kingdom of God's sake, who shall not receive manifold more in this present time, and in the world to come life everlasting.—LUKE 18:29, 30.

The above was printed on a leaflet, and one of these leaflets was put into the pay envelope of each one of our between 200 and 300 employes when they got their pay on Saturday noon. We hope and pray that it may bear good fruit. While we are on the subject of tobacco I wish to submit to you a clipping from the *Sunday School Times*:

WHAT IS TOBACCO?

In the terms of the physician, and told in brief, tobacco is purely and simply a poisonous drug, having no beneficial influence, and for this reason removed from the authorized list of medicaments in which it once had room. It has no food value, it is a narcotic similar to opium in many of its features, its use seldom fails to constitute a drug habit.

Now, you who use tobacco, and everybody else whose eyes rest on these pages, I submit the question: Is it not true, as stated above, that tobacco is not food and is not medicine? It is simply a poisonous drug, and probably forms the worst drug habit that has ever afflicted humanity if we except intoxicating liquors; and how many ever began the use of liquor without first using tobacco as a stepping-stone?

Here is another clipping, from the *Cleveland Plain Dealer*:

GAINS 300 SALOONS.

H. H. Schleman, in charge of the liquor-tax collections in the county treasurer's office, said yesterday that 300 more saloons are doing business in Cleveland than last year.

Licenses have been issued to 905 cigar dealers—an increase of more than 100 over last year.

What do you think of the above? There may be differences of opinion in regard to whisky and tobacco; but I am sure there is a pretty general agreement in regard to cigarettes; yet the above clipping informs us that the city of Cleveland and the State of Ohio grant licenses to sell the deadly "coffin-nails;" and not only that, during the last year one hundred new licenses have been granted. "Lord, help!"

Now, lest you take it for granted that I am a "calamity-howler," and hunting up all the sad and mournful things, let me give you another clipping from the *Sunday School Times*. Perhaps I should explain

first, that over in "Merrie England" it used to be the fashion for the mother of the home to carry the purse; and I wonder if it would not be a good fashion to adopt here right now in our "land of the free and the home of the brave." Well, this clipping that I am giving you is English, as you will notice by the talk; and I am sure it will interest our people who love poultry as well as temperance. Read it yourself and see if I am not right about it:

THE EX-MISERABLE'S BEER MONEY.

Mr. Harold Begbie tells the following in *The Century Magazine*: I was introduced a few months ago to a painter by trade, an ex-fighting man, an ex-drunkard, an ex-miserable. Religion has restored his soul, given him new birth, and made him a useful citizen. He told me how his mates "get at him" for being a teetotaler, and how they are continually asking him, "Don't your missus ever give you any beer money?" "To which I answer them," he said, grinning, "Hoh, yuss; my old lady gives me plenty of beer money—shillings and shillings. And where do you think I keep it? In my garden. Ain't that artful of me? And some of my beer money has got feathers and lays eggs, and some has got fur and makes lovely pie, and some has got flowers and smells a bit of all right. Yuss, if you'd like to see my beer money, drop in some Saturday afternoon and take a walk round my garden. I'll show you last week's beer money, the week's before—yuss, and last year's—hopping and clucking and crowing and smelling beautiful. By the way, old friend, where's *your* beer money? Where is it? Can you show it to me, or is the publican keeping it for you till Christmas?"

Now here is just one more clipping, which I take from the *Union Signal*, that makes me happy every time I think of it. Read it:

GOVERNOR WEST'S CAMPAIGN OF LAW ENFORCEMENT TO SAVE THE SONS AND DAUGHTERS; OREGON'S CHIEF EXECUTIVE CALLS OUT MILITIA.

"Hasn't the governor authority to use the power placed in his hands to protect the God-given property of some poor helpless mother or father? I think so. Anyway, I know one governor who is going to put the question to the test mighty soon," announces Governor West.

Probably no State has ever been more surprised at the act of its chief executive than were the citizens of Oregon when Governor West announced his campaign of law enforcement, which he stated he would carry out through regular channels if his warnings were promptly heeded; otherwise by invoking martial law, with himself as commander-in-chief. He declared that his efforts would be largely directed toward the saloons and road houses, and that the shipment of liquor into dry territory must be stopped at once.* A few days after the issuance of this warning through the press, the platform, and the pulpits (the latter have been freely opened to him) he called a meeting of the saloon-keepers and brewers, to whom he planned to deliver his warning and ultimatum. Because of the absence of the manager of the biggest brewery, the liquor men sent him word that they greatly desired a postponement of the meeting, doubtless hoping that the Governor's action would also be deferred. Evidently, however,

* Once more may God be praised that we have at least one governor who realizes not only the harm but the awful inconsistency of permitting brewers and distillers to continue to ship liquors into territory made dry by the wishes of the people. Manatee Co., Fla., has never had a saloon; and the good people there, I think, will never permit one; but liquors are being shipped in by express constantly, despite any thing we can do; and these shipments go mostly to the colored people. Only a few days ago for the first time that any thing of the kind had occurred in that part of Florida, a negro was taken out of jail and lynched, when it was not quite

this meeting was considered by him only an incident in his campaign, and on the day set for its opening he fired the first gun.

Among a number of roadhouses that are to be reached on the various drives from the city (all of which have been a serious menace to the morals of the city for years, not only in encouraging drunkenness but as links in the white-slave chain) was the Milwaukee Inn. Many attempts have been made to close this place, or at least to mitigate its evils; but as it is beyond the corporate limits of the city, and just across the county line, it is out of the jurisdiction of both the city and county officials: and as Portland and Multnomah Co. were the chief sufferers, the officers of the county in which the house was located, after the manner of some officials, preserved themselves in peace and official blindness.

At ten o'clock on the morning of the day which our young Governor had announced as the opening of the war, he appeared at the Milwaukee Inn, with a company of about fifty carefully picked men of the Oregon militia; and after reading a military proclamation to the proprietor, reciting in clearcut language the unlawful character of the place, warning all persons against frequenting it, he took charge of the establishment. There was placed at

clear that he was guilty of *any thing*. The sheriff was on hand, but he declared himself helpless. Without question it was the work of *liquors*, shipped in to dry territory.

the gates a guard sufficiently large to enforce the martial order which was affixed to the door. Governor West states it is his fixed purpose to proceed against other roadhouses and liquor concerns, saying "I do not care who is responsible for conditions; they have got to obey the law. It makes no difference whether it hits the big breweries or the lessees; they have got to be good, or they will see their finish before I get through with them."

Being questioned recently as to his right to invoke martial law, he replied that no one doubted his right to call out the militia to protect property against lawlessness, and he considered the children of the State as valuable assets as houses and stocks, and he proposed to test his right to give them the protection derelict officers had failed to give. What the next move will be one can not tell; but our governor is aroused; he is made of stern stuff; he will have the support of good men and women, and, so far as we can decide, he has the law on his side. It is needless to say we will keep *The Union Signal* informed as to the progress of this war.

May the Lord be praised that we have at least *one* governor who is not a *coward*, and afraid of the liquor men. If we could have this man or such a man for President of the United States I should begin to think the millennium was at hand.

Health Notes

FERMENTED MILK; ALSO SOMETHING IN REGARD TO MILK AS A HEALTHFUL FOOD.

A good friend of GLEANINGS has placed in my hands a pamphlet of 30 pages, from the Department of Agriculture, entitled "Fermented Milk." It discusses buttermilk, lactose, yoghurt, kumiss, kefir, etc. It is well known that the people of Russia, Turkey, and other northern European countries, have for ages lived largely on fermented milk. Many of those who live to be a hundred years old or more have been in the habit of subsisting largely on various preparations in the line of fermented milk.

There are many valuable hints and suggestions in this bulletin; and I am glad to know that public attention here in our country is turned toward having buttermilk and various other productions from milk take the place of beer and other intoxicating liquors. God speed the day when good nourishing health-giving milk shall take the place of intoxicants.

This pamphlet calls attention to the fact that it is not every one who can use milk largely; and many people at times find it better to cut off milk for a time. That has been my case for years. After drinking milk freely at meals for a month or two I often find it does not agree with me; but after a spell I can take it again all right. I believe there is a general agreement, too, that buttermilk or fermented milk in some form is more wholesome, as a rule, at least with many people, than rich fresh milk. I wish to emphasize one thing that is very

clear and plain to me; and I think the same will be true with most people. Neither milk, ice cream, nor any thing else, should be taken between meals. Even a little fruit in hot weather, while all right during meal time, makes disturbance if taken between meals. When you feel a hankering for fruit, especially during these hot summer days, drink a good lot of soft pure water and you will soon forget the craving for fruit; it is very much better for *me* to eat all my fruit at the time of my "fruit supper," about five in the afternoon. At this time I eat all the fruit I care for, of various kinds, and it causes no disturbance whatever. Nature seems to have caught on to the program, and plans regularly for it day after day. Of course, no milk is used with my fruit. I take the milk in the morning and at noon.

After the above was in type we received the following from the friend who sent us the pamphlet mentioned:

It seems to me that in your list of simple foods which you recommend there is one or perhaps two that might very appropriately be added. One of these is the old-fashioned "clabber" of our grandparents. This, when well made from pure unskimmed milk, and thoroughly cooled, makes as refreshing and wholesome a dish as one bent on simple living could well ask for. To be sure, individual tastes differ, and what may be acceptable to one may not meet the requirements of another. While there is little doubt that clabber rightly made is a very good thing for those who relish it, it would be hard to conceive of any thing much more dangerous than the product one would get by attempting to make it with contaminated milk. It is, therefore, very necessary to know at the start that the milk is pure. It should also be borne in mind that acid fruits, apples, cherries, etc., are things to be omitted at the time curdled milk is eaten.

Another wholesome and simple food is the curd obtained by using rennet, and flavored to suit one's liking. Often this will be relished by those who can not take the soured curd.

May be I should add that, in making the clabber, the milk is first brought to the scalding-point, but not allowed to boil. It is then cooled to about 90 degrees F., and the starter is added. The milk is then kept warm until the curd has formed. It should then be immediately cooled, when it is ready for use. The starter may be obtained by using a small quantity of fresh skimmed milk (half a pint). This must also be scalded, and allowed to cool and sour. Whole milk makes the most palatable clabber; but the starter should contain as little cream as possible.

I trust you will not overlook the importance of mentioning the fact that fermented milk and fruits taken at the same time may bring about serious digestive disturbance with some people.

Aikin, Md., July 13. J. FORD SEMPERS.

NOSTRUMS AND QUACKERY.

On page 19 of the advertising department of our previous issue I spoke of fraudulent medicines. Well, this same medical association has placed in my hands several pamphlets exposing fake cures for drunkenness, the tobacco habit, obesity, consumption, etc. It is bad enough to "rob sick people" in general; but when you come to robbing the drunkard or drunkard's wife by systematic robbery, how can one well find words to express his disgust and indignation? I have for some time been suspicious of these "cures" for the rum and tobacco habit; and several of our readers who have followed them up have written us the results. If the tablets that are sent free of charge have any effect on the poor victim of tobacco or drink it is by giving him morphine, cocaine, or some other habit-forming drug that is worse, if possible, than tobacco or alcohol. Most of these schemes are advertised by some good woman(?) whose husband or brother or other relative has been cured. She pays the expense of advertising out of her love for humanity, and tells people who respond to her advertisement to send to some great doctor in Chicago. The thing is skillfully worked up so as to entrap the friends of the poor victim, and get them to scrape up their hard earnings to send to the "great medicine man." The cure for obesity is \$25.00; but, like the memory school I have mentioned, if the victim does not "bite" they come down to \$15.00; a little later to \$10.00, and finally you can get the whole thing for \$2.00—that is, if you hold back and do not bite right away. These quacks, as you will notice, make a specialty of curing diseases that are beyond the skill of our best doctors—cancers, consumption, epilepsy, etc. I am sorry to know that these rascals are usually punished by fines only, which they can generally pay and go on with their swindling. If our health commission would add imprisonment, and give

them a good long term, it would cure *them*, for a time at least, of *their* pernicious habits of robbing sick people.

Just a word in regard to the medicines sent free of charge. As a matter of course, these give temporary relief. Cocaine, morphine, or a headache cure usually makes you feel better; but for that matter so does a little whisky; but who would think of resorting to whisky every time he feels bad? or who would expect any permanent relief from such a course? When you are cured of any of these troubles by letting nature do the work, as *Terry* directs, then you have accomplished something; but I confess I am gradually coming over to the decision that medicines and the stuffs you buy at the drugstores seldom really *cure* any thing.

ROBBING SICK PEOPLE; "OXYPATHY" AS A REMEDY FOR DIABETES, PARALYSIS, ETC.

Mr. A. I. Root:—I thank you with all my heart, my Christian friend, for the advice you so kindly gave in regard to my husband's health (you may remember my writing to you in Florida about his sufferings from diabetes); and I feel sure that our prayers have been heard and answered, for he has been able to work right along, and at least seems to be holding his own. Circumstances have, however, been such that I could not keep him strictly to the diet you advised. His mother was lately restored to health (as she believes) from a threatened attack of paralysis by use of an "oxypathor," and she thinks it is the veritable cure-all it is claimed to be. I offered to give them a 60-day note (with the money deposited in a local bank) for their instrument, with the understanding that, if my husband's health improved while using their instrument, they could collect the money; if not, we'd return their oxypathor and stop payment of note. They didn't send one on those terms. So I was afraid to invest. As your experience and skill in detecting frauds is far greater than mine, I enclose some of their advertising matter for your inspection, if you have time, and would greatly appreciate your opinion as to the worth of this (to me) new contrivance.

FANNIE M. FEREBEE.

Ridgeland, S. C., July 5.

My good friend, I am glad you wrote me before wasting your money on what you call a "new contrivance." On the contrary, GLEANINGS has been fighting this same fraud for more than twenty years. See last issue. I notice by the circulars you send, that, instead of the old price of \$25.00, they have now got it to \$35.00, when 35 cents ought to pay for the whole outfit if it were of any real benefit to anybody.

Let me remind you of another thing besides wasting money and "robbing sick people." Some years ago our good friend Prof. Cook informed me that his father lost his life by depending on patent-medicine quackery. He was afflicted with a malady that could easily have been managed if taken in time; but instead of going to a physician (or to his *own son*) he trifled with some senseless remedy until he was past help. Most sick people are better at times; and if these times of improvement

happen after they have taken some patent medicine, or "treatment" of some sort they jump to the conclusion that it was the senseless toy that conferred the benefit, and hence these testimonials—that is, testimonials that are not really manufactured. Years ago electropoise, oxydonor, etc., claimed to have "testimonials" from one hundred ministers. The thing has gone down and out of sight several times, only to be resurrected (perhaps under a new name) by some conscienceless rascal or set of rascals.

SOMETHING ABOUT DR. TANNER; FASTING AS WELL AS BEE-STINGS AS A CURE FOR RHEUMATISM.

Mr. A. I. Root:—In GLEANINGS for Feb. 1 a correspondent asks about stings as a cure for rheumatism, and says he is "ready for something heroic." As you always have a corner for unfortunates in Home talks, perhaps you will publish the enclosed for his benefit, as well as for others who may be afflicted.

Dr. Tanner was lecturing in 1903 on the benefits of a vegetarian diet, which he advocated. One lecture was "The Story of the Fast," delivered in Blanchard Hall, Los Angeles, California. I wish I could give the whole of that most interesting and amusing story. Young people, and even the middle-aged, are strangely ignorant of this feat that once filled the civilized world with wonder. They even say coolly that it was not proved he ate nothing in all that time. There are a few left who know. Perhaps you could tell us more about the doctor.

The following is condensed from a lecture by Dr. Tanner:

The doctor was practicing in a town in Ohio about 1870. He was disabled by rheumatism in 1875. Then he went to Minnesota, where he had a friend who was also a physician. This man told him that his heart was in a very bad shape—it might stop beating at any moment. He had pain in the region of the heart—could not lie down.

Tanner went home, very much cast down by his sentence. He sat down in his chair, and paid no heed to any thing. He was not ready to die. He had no thought of food. At the end of five days he accidentally discovered that he could lie down.

The thought came instantly that improvement came from fasting. He then fasted six days more. He felt better, and went to see his doctor, who was very much astonished. "Why, man," said he, "you are cured. Your heart is all right. What have you done?" The cure astonished him still more. Said he, "Ten days is the limit. You have fasted eleven days."

But Dr. Tanner thought the cure might not be permanent. He went home, staying alone in his rooms, and went on fasting, until it was forty-two days.

He went again to see his doctor, and told him. The amazed man was for doing something immediately. "This," said he, "must be sent to the medical journal."

"No," said Dr. Tanner, "you must not publish that. People would not believe it."

The friend respected his wish, but told another doctor, who, without permission, published the case in a medical journal.

"Then," said Tanner, "I was made to suffer. I was told even to my face that I had lied." (He was then selling real estate in Minnesota). "My customers left me, and church members turned their faces away." But there was one consolation. "I have never had rheumatism since," said the doctor.

A year or two later (in 1877) a New York paper came out with a story of a young lady who, in a trance state, had fasted several weeks. (I can not recall how long. Doctors discussed the subject, many saying it could not be true. Dr. Tanner offered to come to New York and fast, under surveillance, forty days, for one thousand dollars. This was offered by Dr. Hamilton at the Medical College.

After a while it was arranged, and Dr. Tanner went to New York and made his famous fast.

LOUISE S. Z. BEMIS.

Cattaraugus, N. Y., Feb. 8.

My good friend, Dr. Tanner, was a *Medina Co.* boy, and he was back to his Medina home several times before he died. There is no question in regard to the authenticity of his statements, and I believe he really was the first man living to demonstrate that some people can actually live "forty days" without food. Since then many people have taken it up, and, I think, generally with benefit, although a very few who are, perhaps, not fitted for such experiments, have been injured by fasting. I believe one person lost his life that way. In our back numbers there have been many reports in regard to it. Upton Sinclair is at present, or at least was until quite recently, the strongest exponent and defender. The periodical *Good Health* for May condemns it in the strongest terms. But they may be extreme in this as well as in some other things. I have frequently gone without food for 24 hours, and I am ready to do it again when nature seems to demand it. I have not yet tried a longer fast. I have not a doubt that it would cure rheumatism and, in fact, almost anything else, if the patient has the grit and backbone to avoid declaring "the remedy worse than the disease."

BETTER THAN FINDING A GOLD-MINE.

We take pleasure in giving place to the following, clipped from the *Practical Farmer*, inasmuch as it comes from a beekeeper and a reader of GLEANINGS:

IF YOU ARE NOT ENTIRELY WELL, PLEASE READ THIS.

A certain doctor said to the writer: "Terry, why do you confine yourself so closely to your study and work so hard? You don't need to; you have property enough. Why not make your life easier now?" My good friends, do you want to know why I do not follow his advice? Then please read the following letter. What is my pleasure, or my little life, worth by the side of being helpful in thousands of homes scattered all over America? This is from Joseph H. Peterson, Ogden, Utah: "I am a beekeeper, and received your book about 18 months ago as a premium with GLEANINGS. Then I subscribed for *The Practical Farmer*. To me this was better than finding a gold-mine. I am 34 years of age, and had suffered for years with chronic constipation and attendant ills, such as stomach trouble, piles, and countless wretched headaches. I ran the course of pills and laxatives, and was taking regularly two injections daily when I got your book. And even if the doctor did tell me I would have to take physic the rest of my life, I now have two and three natural bowel movements daily. Of course, my other ills are going too. Even my threatened baldness is being frustrated since I learned how to live. I am happy to be on the highway of health again. The sun shines brighter, the birds sing sweeter, and my blighted hopes are budding out again, as does all nature at the return of spring. I was ill in body, dejected in spirits, and while I had not lost hope, I was fast letting go my hold on the things and ambitions of life. But I thank you for making plain the simple laws of health, for now I can renew my hopes and ambitions and feel again the vigor of youth and sing with a thankful heart, "Praise God, from whom all blessings flow." No living man

could write such words unless he had pure blood coursing through his arteries once more, and was feeling the thrill of joyous health. With such health it is a real pleasure to breathe, eat, sleep, work. We greatly like the tone of this letter. The writer thanks us for making plain the simple laws of health, which is all we can do, and praises God from whom all blessing flow. How true, "He healeth all our diseases" through his natural agencies of air, water, sleep, food, exercise, etc. We thank friend Peterson most heartily for the trouble he took in sending this report. It certainly will be helpful to some who read it. And we feel under deep obligations to The A. I. Root Co., publishers of GLEANINGS IN BEE CULTURE. They are spreading our efforts far and wide. May it prove "better than finding a gold-mine" to every one of their readers.

If our friend Terry had something to *sell* we might take such extravagant words with a grain of salt; but, may the Lord be praised, he does not advise any medicine whatever—simply nature's agencies, as he expresses it, which are as free as the air we breathe.

POKEWEED FOR GREENS—SEE P. 389,
JUNE 15.

A subscriber sends us the following:

TWO GIRLS DIE OF POISONING.

Miss Lavie Henshaw, 16 years old, and Miss Sallie Pierce, 14 years old, died at Durwood, Ok., May 12, after they had eaten wild greens that contained leaves of the poke plant.

Three other members of the Henshaw family were stricken, but are recovering.—*St. Louis Republic*.

Now, it may be that pokeweed is poisonous, especially if cut down close to the root; but I am loath to believe it. Did not those girls, in their search for "wild greens," get hold of some other plant that was poisonous? From the quantity we gathered at different times down in our Florida home, without the least unpleasant symptom, however, after eating it, I can hardly understand it, unless there is some other plant that goes by the same name. At any rate, it is always wise to take a little at first of something you are not used to, or not very well acquainted with. This is especially true in gathering mushrooms as well as plants for "greens."

CHUFAS.

On page 388, June 15, I spoke about writing to Mr. Hastings in regard to the statement of growing 1000 bushels of chufas to the acre. Below is his reply in regard to the matter:

Mr. A. I. Root:—We have your favor making inquiry as to chufas, and would say that the writer can not give the exact data from which this 1000-bushel figure came; but he is under the impression that it was a test yield with one of the Southern experiment stations several years ago. The statement has been current in Southern seed catalogs for years, but the origin of it is lost. We are aware that 1000 bushels per acre of chufas would be an enormous yield, but we do not consider it an impossibility. There have been yields of potatoes approximating 1000 bushels to the acre, and the writer has personal knowledge of one crop of onions in Texas some five or six years ago that went slightly over 1000 bushels by weight; and under an intensive system of culture there is no reason why chufas should not make an equally high yield.

Atlanta, Ga., June 6.

H. G. HASTINGS.

As the above makes reference to the Southern experiment stations I have written our Florida station to learn if they have tested chufas. I presume there *have* been yields of potatoes (on small areas) approaching 1000 bushels per acre; but contrast the difference, please, between potatoes and chufas. In order to get any thing like this result the chufas would have to be 15 inches apart in rows 2 feet apart, and each plant would have to give at least two quarts of nuts.

CHUFAS AS A SUBSTITUTE FOR COFFEE.

Now, after finding so much fault I have something pleasant to tell our readers—at least those who have been testing chufas. A periodical published in the Everglades, in telling the wonderful things that can be grown there, mentioned chufas; and, while they are very valuable for pigs, poultry, food, etc., it is stated they make excellent *coffee*. I at once ground up some roasted chufas in a coffee-mill—the kind I have written about. I would remark here that they were baked or roasted in the oven, and it was one of my happy surprises when I tasted that chufa coffee. Huber happened to come in at the time, and we gave him a cup to sample. His first exclamation was that it tasted like *malting milk*. Now, malted milk is one of the staple foods for invalids or anybody who has weak digestion; but it is rather expensive.

Just here let us consider the point that vegetarians (and among them our good friend T. B. Terry) have been for some time suggesting that nuts are an excellent substitute for meat or animal food; and right here we have it—a substitute for milk that is *entirely* vegetable, and I am sure it must be nourishing, and it certainly will be far cheaper than any sort of stimulating nerve-racking real coffee—even cheaper than "postum cereal;" and if we could raise 100 bushels to the acre (to say nothing of 1000), it would be cheaper than Terry's wheat coffee. The chufas should be roasted just about as you would peanuts, may be a little more, and then grind them in a coffee-mill, and use one or two heaping tablespoonfuls, say for five or six cups of coffee.

Later.—Here is something from the Florida Experiment Station in regard to chufas:

Dear Mr. Root:—We have grown chufas from time to time at the Florida Experiment Station, and do not consider them the best thing possible for hog feed or for cropping purposes. I think the claim of one thousand bushels an acre for chufas is entirely unreasonable. I did not see Hastings' statement to this effect.

We should be very glad to raise 100 bushels per acre on the average. As a matter of fact, very few farmers in Florida claim more than 75 or 80. Once in a while we hear a man claiming to raise a hundred bushels or over; but these are farmers who

have made a bare estimate on what the crop would be if it were all like a portion of an acre that they have dug.

Some newspaper articles have been going the rounds giving a yield of something like two hundred bushels of chufas to the acre. I can not say just how these results were obtained, as it is quite impossible to follow up even a small percentage of these reports of extremely large yields.

So far as the printed matter from the Florida Experiment Station is concerned, it has been extremely mute on the question of chufas. I can not understand, therefore, to what Mr. Hastings referred when he states that they are highly recommended by the Florida Experiment Station.

Gainesville, Fla., June 15. P. H. ROLFS.

Well, friends, how does the above compare with Hastings' advertisement in his catalog and in our farm papers, of 1000 bushels per acre? By the way, would it not be a grand plan if our different experiment stations would scan the seed catalogs each year, and call down extravagant and misleading advertisements? See page 388, June 15.

REDBUGS; MORE ABOUT THEM.

I saw an article in GLEANINGS (p. 769, Dec. 15) on redbugs that is overdone. I have lived in Ohio, Illinois, and now in Texas nearly four years, and redbugs are not everywhere in Texas; and I think likely it is a mistake that they rear any offspring in flesh. Grease helps somewhat, but often fails completely to be of any benefit whatever; but if you use grease beforehand, all right.

I know several native Texans who are just as susceptible as myself to redbugs, poison oak, cowage, and vine poison. I am immune just so long as I stay away from them. Some people have an idea that Texas is what Sheridan said war was, which is a mistaken idea.

Bloomington, Texas, Dec. 26. L. A. CAMERON.

I think very likely the above is correct. During the past winter we were so free from any annoyance from redbugs and other insects that I was inclined to think they were disappearing or that we were becoming immune; but along in March and April, after the rains had ceased that we had been having quite freely all winter, the redbugs came back, and I think they were about as bad as I ever saw them. A few days ago I happened to ask my neighbor Rood if they were troubled with redbugs. He replied that they had not been troubled at all, and added that, if we would clear off the scrub palmetto from our ground, as he had from his whole farm, we would have no more redbugs. I think this is probably true; but in caring for my ducks and chickens it is almost impossible for me to keep from brushing the palmettos more or less. And, by the way, I am greatly inclined to think that the greatest part of our troubles are from poisonous vegetation such as the writer mentions in the above. I am sure it is true, because I have had at times a breaking-out that nearly covers my body, something like what we used to call "hives" here in the North, during hot summer weather. Redbugs are bad enough; but I do not believe they are the cause of all this breaking-out and itching. The lady writer

in our issue of Dec. 15, referred to, thinks that, when these bugs get a foothold, they may remain for two weeks. This, certainly, is a mistake, I think; for when we come back North all annoyance ceases in two or three days. It is a week to-day (April 23) since I left Florida, and I can say that almost all traces of redbugs have disappeared entirely. Perhaps I should add that people who live in towns and do not go out into the woods are seldom troubled with any of these pests.

SELLING RECIPES FOR DOING THINGS, ETC.

One of our subscribers sends us the advertisement below, which he clipped from the *Mississippi Commercial Appeal*:

Send \$1.00 to-day for recipe to make gallon good honey for 50c without bees. May not appear again. W. J. Green, Rienzi, Miss.

Of course we have wasted many dollars in times past in sending for recipes; but here goes one more.

After five days comes the recipe as follows:

One and a half pounds of bees' honey; six pounds light brown sugar; one and a half pints water; two ounces cream of tartar.

Dissolve cream of tartar in a little water, then put all articles together and boil in a copper vessel until well mixed, usually twelve to fifteen minutes; stir while boiling; skim off froth that arises while boiling, which eats well. Now ready for use, but improves with age.

Can make again, using what you have made instead of honey.

Here is the letter accompanying it:

Mr. Root:—Your letter containing \$1.00 came to hand, and is duly noted. Enclosed find receipt for making one gallon honey without bees. You will make as nice honey as you ever eat. The longer it stands, that is, the older it gets—the better it is.

Thanking you for the order, I am yours truly,
Rienzi, Miss., May 15. W. J. GREEN.

In the first place, it is practically the same old recipe that was in the papers at least forty years ago. Second, he claims to make honey without bees, and yet it takes a pretty good dose of bees' honey to make the stuff. We are glad that such things now are not as common as they used to be; but I am going to submit this whole matter to the proper authorities, and ask them if this man is not making a fraudulent use of the mails.

PARCELS POST CHEAPER TO FOREIGN COUNTRIES THAN TO OUR NEXT-DOOR NEIGHBORS.

I clip the following from the *Rural New-Yorker*; and after you have read it I hope you will do something more than to "think and think and think."

Going through the busy corridors of the New York postoffice one sees a placard announcing in large black letters, "Parcels post to foreign countries, 12 cents a pound." And then the meek American citizen affixes 16 cents to a pound of merchandise for transmission through domestic mails, and thinks and thinks and thinks!

POULTRY DEPARTMENT

WHITE ORPINGTONS—A REPORT FROM SEVEN PULLETS.

Dear Brother Root:—I am inclosing a record of my first pen of White Orpingtons. I think it is not very far behind the best; but I should be pleased to see your comment on it, if you can conscientiously do so.

At the time these pullets were commencing to lay, it was from 20 to 24 degrees below zero. In January I received 97 eggs from the five oldest. I intend to make egg-production a study and a business. White Orpingtons—number of eggs laid:

Hatched		At 1 yr. old	To July 14, 1912	1st egg laid
5-26-1911	Queen,	65	89	12-27-11
"	*Edina,	109	139	1-4-12
"	Diana,	71	89	1-5-12
"	Mamie	61	80	1-6-12
"	Juliette,	60	82	1-9-12
6-26-11	Red Wing	55	57	1-30-12
"	*Beauty,	123	132	1-30-12
"	*Annabel,	105	119	1-31-12
"	Bunch,	40	52	1-11-12
Total		.689	839	
	*Edina, Beauty, Annabel,	337	390	

These last are the three best layers in the above record. Edina and Beauty never went to sitting until June 26, and Annabel July 14. Beauty missed only one day, May 8, from April 23 to May 22 inclusive.

Juliette became crop-bound, and was sick two months. The other five hatched out two settings of eggs each.

Brunswick, Mo., July 15.

FRANK SMUTZ.

We have given the above, not because there is any thing particularly remarkable about it, but rather because our friend had his pullets all named; and he knows just when each pullet commenced to lay and how many eggs she laid up to a given time. I suppose that the seven were trap-nested, although he does not say so. The whole seven commenced laying when about six months old, and during a time of severe zero weather. I rather think this lot did better, because they had extra care and attention. Each one having a name would indicate it. Now a point comes in right here: Shall this friend save his eggs from the best pullet? I believe the general tendency is, from the best authority, to say no; but instead of taking eggs from the best layers, get the eggs from the *mother* of this great layer. If the mother produced one Edina layer she could probably produce more. This same thing applies to bee culture—rear queens from the *mother* of the queen whose bees gave a great crop of honey, rather than from the queen herself. And this mode of procedure indicates *why* we can pay a big price for tested breeders, either queen bees or mother hens. One thing more:

When you get hold of a fowl that has given you pullets with big records, you should keep that fowl for a breeder, no

matter how old she is. Even if she is so old that she lays only a few eggs, if these eggs have proven season after season to produce pullets that are great layers, hold on to her.

TESTING EGGS BEFORE THEY ARE PUT INTO AN INCUBATOR, ETC.

We clip the following from an editorial in *Poultry Topics* for July:

By testing the eggs before placing them under the hen in the incubator, the farmer can increase the percentage of eggs hatched. In many cases this percentage can almost be doubled.

We have usually found *Poultry Topics* to be a very steady and reliable journal; but the above perplexes me exceedingly; and the more I study it the more I am troubled about it—first, has the editor of *Poultry Topics* been in the habit of keeping a *hen* in his incubator? second, does he mean to tell us that “the farmer” or anybody else, for that matter, can sort out the unfertile eggs before giving them, say three days or more, to a sitting hen, or placing them in an incubator? I know there are at least two persons who have advertised in the poultry journals that they could teach how to sort out the unfertile eggs *before* giving them either to the hen or to the incubator. If I am correct, the magic egg-tester makes some such claim; but I am ready to pay \$100 for any process that will succeed as above at any experiment station. The egg-tester simply gives the specific gravity of the egg; and they claim the heaviest eggs hatch the best chickens. Now, even if this is true, the specific gravity of an egg has nothing to do with its being fertile or unfertile. This I have tested to my satisfaction.

A KIND WORD FROM ONE OF OUR MISSIONARIES.

Mr. A. I. Root:—Time has again brought around one pleasant duty of the moment, which is to thank you, as senior partner in your firm, for your continued kindness to me in the matter of sending me GLEANINGS for the past 12 months, and which is as much appreciated as it ever was.

The swing of the pendulum, I observe, has occurred in your country, and some State legislation has taken place not promotive of temperance. It was the effect I was fearing. Great success in big movements seems always to be followed by some setback; yet the movement is not overthrown.

In this little island, drunkenness is not in fashion, and one may live and move about in it for months without seeing a person the worse for liquor except at such times as fleets visit us, when it seems to me *English marines* take a disgraceful first among the nations represented.

Trusting that many years of usefulness may lie before you in God's cause, and with my best wishes to you and Mrs. Root for a happy 1912, I remain,

W. A. HUTCHINSON.

St. Joseph's Rectory, Barbados, W. I., Dec. 30.

Gleanings in Bee Culture

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Editorial

OUR cover picture for this issue represents a field of buckwheat in full bloom, the flowers in the foreground standing out remarkably sharp and clear. In localities where only occasional fields are grown, this plant may not make much difference in the surplus honey crop; but it is often of great value in stimulating brood-rearing or helping to supply winter stores.

CROP REPORTS.

IN the way of crop reports and market conditions, the reader is referred to pages 509-512 of this issue. In the meantime we shall be glad to have our subscribers continue sending in their reports. Make them brief, so that we can publish them just as they are. Most of the reports given elsewhere are extracts from letters.

GLEANINGS IN THE "WINDMILL DAYS."

A REQUEST has been made that we issue a call for a show of hands from those who were subscribers of GLEANINGS 40 years ago, when our only source of power was that derived from a windmill. We would appreciate it very much if all such would give us their names, in order that we may publish a list of them. We are afraid that there are but few, after all these years, who are still keeping bees or reading GLEANINGS; but we are sure our readers would be glad to know who they are at this time.

FOUL-BROOD LAW IN TENNESSEE.

THE Tennessee State Board of Entomology has just issued (June, 1912) Bulletin No. 6, which is the amended law creating the Tennessee State Board of Entomology, and also the apiary-inspection law. One thousand dollars and expenses is the appropriation provided for the inspector, who, by the way, is appointed by the State Entomologist.

The first six sections relate to the appointment of the inspector, his authority, treatment, sale of infected bees, etc. Section 7 is as follows:

SEC. 7. Be it further enacted, That any person, firm, or corporation who shall bring into the State of Tennessee any colony or colonies of bees, shall immediately notify the Inspector of Apiaries of such fact, stating where such bees are being kept, and shall at the same time file with the said Inspector a certificate from the duly appointed Inspector in the county or State from which such bees were shipped, stating that such colony or colonies are free from any infectious or contagious disease; and in default of such certificate it shall be the duty of the Inspector of Apiaries to proceed to examine such bees, and ascertain whether they are free from foul brood or other disease. Any person, firm, or corporation who shall fail to notify the Inspector as required by this section, for a period of ten days from the arrival within the State of Tennessee of such colony or colonies of bees, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than five dollars nor more than twenty-five dollars.

Section 8 requires the boiling of any honey used in making queen-cage candy, at least thirty minutes, and also specifies that any person engaged in the rearing of queens shall have his apiary inspected at least twice during each summer season. If disease is discovered, all shipments of bees or queens are to be stopped until the inspector shall declare said apiary free from trouble.

A WIRING "KINK."

IN talking with Mr. A. B. Anthony, of Sterling, Ill., in regard to wiring frames, he mentioned a point which is very important. He makes no effort to get the wires absolutely tight, but still takes care that they be not too loose. After fastening in the foundation he takes pains to see that the upper wire is imbedded with what sag there is below an absolutely horizontal line. The middle wire he leaves straight, and the lower one he imbeds with the slack above the horizontal. The most sag is in the lower part of the combs, and it will be seen by this plan that the lower wire can move down with the foundation so that there will be less buckling. Mr. Anthony's frames are slightly shallower than the standard, so that he uses only three wires. If he used standard-sized frames, which have four wires, we suppose he would divide the amount of sag of the wires in the same way.

WHY DO SWARMS CLUSTER BEFORE LEAVING?

It is also Mr. Anthony's belief that swarms cluster until they can get word from some bees left in the parent colony that all is well—in other words, that there is means for a new queen left, so that the life of the parent colony is assured. To prove this theory, Mr. Anthony selected a swarm which left with a virgin, there being at the time one more virgin left in the parent hive. The swarm went into one of the upper branches of a tall tree, and clustered. Without making any effort to reach the swarm he quietly went to the parent colony from which the swarm had issued, and destroyed the remaining queen, so that the condition of the bees of the parent hive was hopeless. In about twenty minutes the swarm in the tall tree broke up; and, although accompanied by a queen, they returned to the parent hive. Mr. Anthony has not tried it more than this once; and while he realizes that his theory may be wrong, he knows that it certainly worked in this one case and saved him a disagreeable job.

HONEY STATISTICS FOR OHIO.

THE annual report of the Secretary of State conveys the strange information that Ashtabula Co., with 975 stands of bees, produced 63,268 lbs. of honey in 1910, or an average of 65 lbs. per stand. This (Medina) county is credited with 6870 stands of bees that gave only 386 lbs. of honey the same year, or an average of only an ounce per hive. In respect to figures, these cause us to doubt their traditional truthfulness; but the blame may be justly attributed to those who handle said figures. While the yield in 1910 is easily believed for Ashtabula Co., the tremendous number of colonies credited to this county seems all out of proportion, as but few bees are kept in Medina County except at the Home of the Honeybees, and even these would not account for more than one-sixth of the number reported.

COMB-HONEY CANARDS AND SUNDAY PAPERS.

WE have never taken much stock in Sunday papers—not so much because they are printed on Sunday, for, as a matter of fact, they are probably all finished before daylight on Sunday morning—but because of the fact that an immense army of boys and young men, who ought to be in Sunday-school, are engaged in selling these papers at newsstands and delivering them in various homes in our cities. However, the chief objection we have to the Sunday papers is that the news contained therein is

far less reliable than that contained in the papers issued on week days; for, as a rule, such news is garbled so as to be put in the most attractive form, and compiled in such a way as to be made interesting, whether truthful or not.

An illustration of the fact just mentioned is given in the St. Louis *Globe-Democrat* for June 30. In an article headed "The Busy Bee," the following statement appeared:

In fact, it may be confessed, though with regret, that man has gone still further, and has not only become able to produce honeycomb, but has also successfully, though to no great commercial extent, filled such comb with adulterated honey and capped the cells over, without putting his honeycomb into the hive at all! To such a pass has invention and adulteration of food come.

We have written the publishers, the Globe Printing Co., protesting against such a statement and have their assurance that they will publish at least a part of our letter correcting the mistake. But probably not more than one in ten who read the original statement will notice our reply.

MIGRATORY BEEKEEPING V. WINTERING BEES IN THE NORTH; SHIPPING IN CAR LOTS WITHOUT COMBS.

ONE of our correspondents, Mr. T. T. Taylor, in the Heads of Grain department of this issue, raises the question why it would not be cheaper to buy bees in the South, where they can be reared in large quantities, instead of going to the expense and risk of wintering in the North by the use of double-walled hives or elaborate and expensive bee-cellars. His plan seems to be that it is not necessary to keep bees all the year round, especially at such times of the year as they are consumers and not producers. At the close of the honey-flow he would double up his stocks into big ones, and in a comparatively short time have but little brood and fewer bees to destroy or move to pastures new.

If ever a plan of this kind was feasible it was during the past winter and summer; but, so far as we know, Mr. R. F. Holtermann and ourselves were the only ones in the United States who attempted to ship bees by the carload from the South to the North. The venture was a financial success with us, and probably was with Mr. Holtermann. In such migratory beekeeping every thing would depend on whether there would be a fair flow of honey after the bees were moved northward. If there was a big flow, bees might gather enough to pay the freight or even their first cost; but it would have to be a big yield to do it. So, generally speaking, we would have

to figure that the bees could not pay for themselves the first year. If that were true, they would have to be wintered over, and that would destroy Mr. Taylor's well-laid scheme. But our correspondent does not contemplate moving brood, combs, or honey. He would move just the bees in suitable shipping boxes without combs or honey, and in their stead supply queen-cage candy.

The scheme is not as wild as it looks. There has been quite a little correspondence between Mr. F. B. Cavanagh, of Hebron, Ind., and Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., and ourselves as to the feasibility of shipping a carload of bees in pound packages or even five-pound lots, without combs. Mr. Cavanagh's idea was to secure a crop in the North, then move the bees without combs after brood-rearing had practically ceased in September, say, and then ship all to the South; build them up well, on another set of combs, secure a crop of honey in the South, and after that is secured stop brood-rearing by caging the queens, and again move the bees North in the spring and so on back and forth. This would eliminate the northern wintering problem, and enable the owner with his bees to get two crops instead of one. When bees are shipped without combs in one-pound or five-pound packages, the freight would be materially reduced. Indeed, one could ship nearly a thousand packages without combs. Of course, the owner would have to go with them, and wet them down with a watering-pot, for bees in transit require a great deal of water.

We may say in this connection that, if the beekeeper makes the right kind of preparation, and gets in touch with the various railroad lines over which the bees are to travel, he can usually reduce the days on the route to half the regular time. Our last carload, for example, came from Florida in six days; and if, for instance, bees were to move from Nevada to California, they ought to go through in two days.

Our Mr. Ernest Marchant, son of A. B. Marchant, knows how to move bees in car lots; and there are many others in the country who can do the trick provided they will follow the directions we can give. The two carloads of bees which we secured from the South produced enough honey, although split up into nuclei on arrival, to pay about a third of their entire cost. We sold enough bees out of them to pay the rest of the expense, and

now have considerably more than two carloads of bees left with about 5000 pounds of honey in the hives. Mr. A. B. Marchant, before shipping them north (had the season been at all favorable, which it was not), could have secured a crop of tupelo honey. As it was, he obtained a light crop, and then shipped the bees north.

There is another feature about this proposition that looks attractive. Bees shipped without combs would not carry disease. At the present time there is a great outcry in California against the shipment of so many carloads of bees from other States; and in some cases, at least, American and European foul brood have been imported. We can not blame the beekeepers in California for complaining; yet if the bees were shipped in wire-cloth cages holding about five pounds, and if they could be shipped through successfully (and we believe they could), all danger of disease would be eliminated, and the cost of shipping 1000 combless colonies would be no more than 250 colonies on combs in hives. If the beekeeper owned a set of combs and hives at each end of the route, and could arrange to let all the brood hatch by caging his queens before shipping, he would stand a fair chance of securing two or three and possibly four crops in place of one or two. Where is the man of brains and capital to try it out? Perhaps a group of beekeepers could chip in bees and money and hire one of their number to carry out the scheme. This would divide the cost so that if the project proved a failure such failure would not fall upon one man.

We believe it is *possible* to make a scheme of this kind work, and make money; but we would not advise any one to enter into it on a large scale, as he might meet with catastrophe. It would require experience as well as skill.

There has been a big trade in bees shipped by the pound and half-pound. It has passed the stage of experiment and now is an assured success; and, moreover, it eliminates practically all the danger of spreading disease.

It is possible that legislation will in time require the elimination of combs, brood, and honey when bees are shipped from one State to another, or from one locality to another.

We should be glad to have this question discussed; and if there is any beekeeper or group of beekeepers who feel inclined to carry out the experiment we should be pleased to give them all the information they may require.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

H. H. BROWN, replying to your questions, just once I saw a laying worker deposit eggs. I don't know whether a laying worker lives longer than other workers—would guess she does. If young brood is furnished, I *think* a young queen will be often reared, putting the laying workers (not worker) out of business.

A. I. ROOT, I'm interested in watching Terry and you trying to reach the 100-year goal; but I'm not so wonderfully stuck on waiting to see the outcome of flying-machines, etc., p. 457. New things will be coming up all the time whose outcome you will want to see, and you'll never want to get away. Besides, I'm sure I can watch the outcome just as well after I get to heaven (if I want to), and have a more comfortable seat while watching the performance.

P. C. CHADWICK, p. 435, they'll say black stings are stung more than bare legs, not because of color, but because of cloth. Try one stocking black and the other white. [It was Jay Smith, if we are not much mistaken, who reported how two dogs, one black and the other white, went racing and "cavorting" through his beeyard. The black dog was badly stung, while the white one was not touched at all. A good many reports have indicated that bees will sting black clothing when they will not attack white. We do know this—that they will attack black spots in clothing; and we suppose this is because they think they are striking at the eye of their victim. Some people say that bees do not think or reason; but they do something that is equivalent, at all events.—ED.]

THE *Beekeepers' Review* gives a scheme for queen-candy that, when used for mailing queens, is foul-brood proof. Don't use honey at all—use syrup of granulated sugar, with enough glycerine to prevent granulation. [Here is a recipe that is said to be foul-brood proof also:

The candy feed such as I sent in queen-bee mailing-cage is made of granulated sugar, glucose, coffee A sugar, cream of tartar, and water, boiled to 238 degrees. The mailing-cage is the common Benton cage made by the Falconer Mfg. Company. This same kind of food I have, brought through since January, 1912, nearly all of my bees. I could not feed them last fall, on account of sickness and death in my home. I have a number of letters from beekeepers who used this food this last spring with good results.

Blackstone, Mass.

C. F. FULLER.

We have not yet had an opportunity to try it, as we have not yet secured a high grade of glucose nor any kind that is fit for the purpose.—ED.]

MR. EDITOR, I've urged glass as wide as possible in shipping-cases, to make a fine show; but now if you're going to throw out glass altogether I'm with you. It will be a relief not to have to worry for fear veneering is done—strength of case and saving in expense count too. [Good! glad to know that we can join hands in the shipping-case proposition, even if we can not agree on the width of glass. A shipping-case with solid wood, front and back, has about twice the strength of one having a wide glass front. Try it out and see what a difference there is in the rigidity of the boxes. In proportion as the shipping-case is weak or wobbly, in that proportion we have broken combs and a lot more that are leaky.—ED.]

LOOKS rather logical, Bro. A. I., p. 460, instead of punishing the murderer who is crazed by drink to punish the man who sold him the drink. But it's better to go for the men "higher up." The saloon-keeper is doing a legitimate business. Go for the men who make it legitimate, the men who make the laws, and, still further back, to the Christian men who vote for them. If you electrocute all who are responsible for murders committed by men in drink there will be some thinning out of our church rolls. [But the trouble is, doctor, we can not get the men who are higher up—too many times their tracks are covered. By getting the saloon-keepers we may be able to get them to "squeal" on the men back of them. Of course, you can never get the voter. He can vote for the meanest man that ever lived. It would be an excellent law that would enable us to hold any saloon-keeper liable for any damage a man may do to life and property as the result of liquor that he sells him. Such a procedure would enable us to reach the man higher up. For example, in Ohio just now our officers are getting after our State senators and representatives who have taken bribe money in consideration of their votes in the General Assembly. Three men have been found guilty, and sent to the penitentiary. A lot more have been indicted; and the prosecutor says he will send the whole bunch of them to the penitentiary. Well, it happens that these indicted men are beginning to cry out "Enough!" They are now willing to "peach" on the men higher up. Misery loves company. The bribe-taker is not always going to keep still. It looks now as if we were going to get some of the bribe-givers.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

No more correct statement was ever made than that of Mr. Holtermann on page 228, April 15, that the best place to get foundation drawn out is in a super over the brood-chamber of a strong colony.

* * *

The Editor says, April 15, p. 223, "It is true that still air, although the temperature be much colder, is not nearly as severe on bees as a warmer temperature when a gale is on." Quite true. The same rule applies to bees as to human beings.

* * *

Passing under some basswood trees yesterday by the sidewalk I noticed they had dropped their blossom buds before opening; and, in fact, the entire flower stem, the sidewalk being nearly covered with them—something I have never before seen.

* * *

Mr. Foster's description of his early home on page 330 was profitable as well as pleasant reading. Every such home is worth to the country more than a goldmine. If beekeeping makes such homes possible, hurrah for beekeeping!

* * *

Dr. Miller, Apr. 15, p. 223, says that poultry in the United States in 1910 was worth 14.79 times as much as bees, "*according to the Bureau of Census.*" Pretty poor authority on bees. Some time ago a man taking the census refused to take my bees at all.

* * *

One of the charming sights the beekeeper enjoys in late June is the luxuriant fields of alsike clover with its innumerable blossoms of every shade, from white to red; and their fragrance! how delightful! Surely "Its smell is as the smell of a field that the Lord hath blessed."

* * *

Testimony as to the value of sweet clover continues to accumulate, and I dream of the time when in some measure it will take the place with the beekeeper that basswood has filled, as it blooms at about the same time. I believe that, when the present prejudice has died out, sweet clover will prove of great value to both farmer and beekeeper.

* * *

I wonder if we beekeepers half appreciate the care the editors of our journals take to give us just the information we need at this season. Just look over the May numbers of GLEANINGS and see how many

articles there are on making increase, putting on supers, etc., by such authorities as Doolittle, Townsend, Dr. Miller, and others.

* * *

I was rather surprised at the statement of P. C. Chadwick, p. 297, May 15, that sealed brood will stand a temperature as low as 40 degrees. I am glad to know it, for the advice about spreading brood is just as good here in the East as in California. I have found that a good way to build up those weak colonies is to change eggs or young larvae for mature brood, and so quickly get them in good order.

* * *

There was a good show of clover the past spring; but the weather was cold and rough until June 22, and by July 1 we were in the grip of a severe drouth with tropical heat; and by July 10 apparently most clover was dried up; but bees have done very well. I think it must be one of those years Mr. O. O. Poppleton, of Florida, tells of, when the bees make honey from fence posts. But I notice it has the flavor of clover.

* * *

The theory and practice of putting on supers by Dr. Miller, page 281, May 1, is not only worth careful reading by beginners, but careful study until thoroughly understood. A good deal of light has been thrown on this subject in comparatively recent years. I used to think it unnecessary to put on a second super until the first was about two-thirds or three-fourths full, so that, while the bees were finishing the first super, they could begin on the second; but I have found in recent years that in a good flow a good colony will sometimes fill two moderate-sized supers almost as soon as they will one.

* * *

I greatly fear the article on p. 275, May 1, on extra rapid increase, will mislead beginners in beekeeping. Thirty colonies from one, and that in a poor season, we are informed! I am naturally skeptical, and so doubt if one experienced beekeeper in fifty or even a hundred could do as well, and produce thirty colonies from one that would be worth wintering, even in a good season. Much more helpful to me are "Lessons Learned from Mistakes in Beekeeping," page 283. A child learns to walk quite as fast when he falls as when he stands erect. We must win strength by struggle in this world. I haven't much use for the man who is so angelic he never makes a mistake.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Extracted honey scores again. A small crop was secured where comb honey would have been impossible.

* * *

I fear some queen-breeders are like fancy poultry-raisers — sacrificing productive qualities for showy stock.

* * *

Paint your hives. A good coat of paint occasionally will make a hive last for years. Without it the hive is soon sun-checked, season-cracked, warped, and fit only for kindlingwood.

* * *

I am in receipt of a copy of "Texas Beekeeping," the compliments of Mr. Louis H. Scholl, who is also its editor. It is issued by the Texas Department of Agriculture, and is one of the most complete works of its kind I have ever seen.

* * *

A honey-buyer gave reports of how many cases of honey he bought here, and how many somewhere else, which was, I believe, entirely true; but he was implying that this was new honey, while the fact was that much of it was last season's crop, but was used to influence the market in the buyer's favor.

* * *

Bees as property are much like animals: well cared for they are a valuable asset; but poorly cared for their value decreases according to the care given. As for ability to conform themselves to conditions, they are in some respects superior to man, especially in that they refuse to reproduce when there is nothing coming in on which to feed their young.

* * *

A beekeeper of more or less prominence, in speaking of the difference in the growth of the sage this year and last made the assertion that last season the growth was much longer and contained from twelve to fifteen buttons on each stem; but as a matter of fact there are rarely ever more than ten buttons on a stem, while five to seven is the rule. I mention this to show how closely the flora is observed by some.

* * *

How ruthlessly our theories are sometimes upset, and a set line of practice becomes impossible! Nearly two years ago I wrote an article for this journal on management of bees, in which I spoke of hives at the beginning of the honey flow containing from 7 to 17 frames of brood. I was

perfectly justified in every assertion made; but since that time I have not seen a hive with over ten frames of brood, and some lines of management spoken of in the same article have not been at all practical since; yet I am sure I will return to that line again under more favorable conditions.

From this, one can see the difficult position of the novice who reads, and decides to follow a writer's suggestions; but conditions change, and he knows no way out of his difficulty until he has knowledge that will point the way to the next best course to pursue.

* * *

How often it happens that a weak colony will struggle nearly through the entire season, requeening and getting built up, only to bloom out the following season with a vigorous young queen and a hive full of bees, while the best colony the previous season will struggle along with an old queen and make a dismal failure! Queens in this climate should not be carried over to the third season. Two seasons of active work will put them beyond their best, and I believe we should all be better off if we would practice requeening after every season's honey flow.

* * *

July 18 marked the end of another beekeeper. Mr. Walter Parrish, once a prominent queen-breeder of Lawrence, Kansas, and widely known through this branch of the bee industry, passed away. Mr. Parrish had every promise of becoming a renowned queen-breeder, and was receiving daily orders for his queens in the summer of 1910, when, to his astonishment and dismay, he discovered foul brood in three colonies he had purchased. This ended Mr. Parrish's queen-rearing. Though receiving daily orders, he at once began to return his customers' money instead of queens. Though his queen-rearing colonies were free from disease, he refused to let any customers take risks he would not care to take himself. Mr. Parrish had never been strong, and this was quite a shock to his ambitious nature, and probably helped to undermine his health. In the fall of 1911 he decided to come to California, which he did; but his health was not regained, and he failed rapidly, the end coming as stated above. What better tribute could be paid to this young man, in his thirty-first year, than that he sacrificed his business for the sake of his customers' welfare? He had many customers in California.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THOSE PICTURES OF L. C. ROOT.

When the July 15th issue appeared I enjoyed those pictures of L. C. Root very much indeed; and it has occurred to me that GLEANINGS ought to give more pictures of the other well-known beekeepers of the country in much the same way. It is a pleasure to see these old veterans, snapped right among the bees. It would be appreciated by all of us, I am sure, if we could have a glimpse of the many old-timers as they look to-day.

* * *

CHUNK HONEY.

It seems that our northern friends are trying to insist on the name "chunk honey" for the product known entirely as "bulk comb honey" in Texas. Just why this should be, we can not understand. For a Texas beekeeper to use the term "chunk honey" for bulk comb honey is looked upon as gross ignorance of the real name for this product. Bulk comb honey is the proper name, and it should be used. Being strictly a product of commercial importance, originating in Texas and named by Texas beekeepers "bulk comb honey," it is only right that others should be expected to use that name.

The term "chunk honey" is entirely out of place in the Texas beekeepers' vocabulary as a general rule. That name is out of date, and the product now produced as bulk comb honey is so much superior in the way it is produced, packed, and marketed, that the newer name is well warranted.

It is hoped that the old-fashioned term "chunk honey" will be put aside, and "bulk comb honey" used instead. The latter term covers all comb honey produced in frames or otherwise, then cut out and marketed. There are many ways in which bulk comb honey is marketed. However, in Texas, the home of this kind of comb honey, it is almost entirely marketed in standard-sized tin packages in wooden cases.

* * *

MOVING BEES WITHOUT SCREENING.

Although we have argued against taking the risk of moving bees with the entrances of the hives wide open, the subject comes up again every once in a while. There would be no objection to this if it were not a fact that beginners are apt to be misled. I have seen several instances of this kind. Of course, there is not so much danger connected with this method of moving when the automobile truck is used, as in the case of J. Van de Vord, p. 445. With

horse-drawn vehicles it is by far the best and wisest plan to close the hives securely upon all occasions, providing for proper ventilation during warm weather, of course.

After giving open-entrance moving a trial upon several occasions, both during cool and warm weather, I have concluded to denounce it under all circumstances. It does not work satisfactorily enough in the first place, especially if colonies are strong or the weather is warm, as the bees cluster outside and all over the hives. They often crawl all over the wagon in spite of frequent smoking. This is the result with night moving, and during the day such moving can hardly be done. It takes a lot of time and precaution to get them on the wagon with a lot of smoking; and while they will remain reasonably quiet while the load is in motion they come out of the hives as soon as the wagon stops. This is bad if a sudden stop must be made, as in case of an accident or otherwise while on the road. We do not like this method. It is safer and wiser to screen the entrances.

* * *

HIVE-NUMBERS.

Manilla hive-tags boiled in paraffine, and cheap to replace when they are worn out, sounds good enough, Mr. Editor and Dr. Miller; but the matter of fastening them to the hive—that is the question I am driving at. I want a number that will last while I can shift it from place to place in a jiffy—that is to say, one that I can put on either end of a hive or super, if the hives are reversed end for end; also if I want to raise the brood-chamber up, and I'd like to have the number tag on the lower one just given. This is especially necessary with our numerous manipulations with the divisible-brood-chamber hives. It would cost me thousands of tacks and a great lot of tacking, with ten thousand supers in use, any of which may come into place at any time where it must bear the number tag. Understand?

Well, I am tickled because I have invented such a tag, and have been using it for several years. It works like a charm, can be placed on the hive in a jiffy, taken off and placed somewhere else in a jiffy, and not a single tack, nail, nor staple is needed; and it is cheap enough for me, especially if the value of such a number tag is considered. It is difficult to describe it, so I'll make drawings of it and show you. It can be made to fit your hives too, Dr. Miller, as well as yours, Mr. Editor.

Conversations with Doolittle

At Borodino, New York

USING "BAITS" TO THE BEST ADVANTAGE.

I have read with interest what you have been telling us about bait sections; but you have not told us how to use them to the best advantage. Some put them in the center of the super so that the bees can work both ways from them, drawing out the foundation on either side till the ends of the supers are reached. I may not be up in this matter; but it looks to me as if it would be better if there were some way of using them so that the sections near the ends of the super would be finished up within a few days of the time the center ones are. Where the sections at the ends of the supers are two weeks behind in finishing, I find that those finished first in the center of the super are often badly travel-stained, so much that they have to go in a grade lower than would be the case could the super come off when these are first finished.

Something depends on the number of baits we may have at the beginning of the season. To get at the matter we will suppose we have 100 colonies which we expect to put supers on for section honey; that we use a super holding four rows of sections, 11 sections in a row, or 44 sections to the super, and that we have only 100 baits. I know of no better way to use them than to put one of these in the center of one of the center rows. This bait will have five sections filled with foundation on either side in that row, and in the other three rows. The bees will begin work in the center of the supers; and if the season is poor, or the sections put on early, the center sections in such supers will be finished long before those next to the ends of the supers. But we have the consolation that, even in this condition of affairs, the bees enter the sections much sooner than they otherwise would; and through this we not only secure more honey but discourage swarming.

If we have 200 baits they should be put in the center of the two outside rows. In this way the bees will commence work all through the center of the super at the same time. The drawing of the bees to the center of the two outside rows makes it warm in the middle rows, and for this reason the bees will begin to draw the foundation there as soon as they will on either side of the two baits. I find that baits are mostly used in this way unless there are as many as 400, when one is put in the center of each row. Then if the bees are somewhat crowded for room they will fill two-thirds of the sections so they will be near completion at about the same time, while the other third will be only a few days behind in all ordinary good seasons. Many tell me that 400 baits for 100 colonies in the spring is all that is necessary, and that they would not use more if they had them, other than to fill supers full of them, and put such on

the hives when the flow is at its height, under which circumstances they will be filled and completed so that they will go as No. 1 or fancy honey, which they claim can never be the case where sections are used as baits. I do not agree with those who argue thus; for if I could always have things just as I like them I would have 800 or 1200 baits for the 100 colonies, the latter preferred. With that amount I would fill the 100 supers in this way: I would put one in the center of each of the four rows; then I would put one in each of the four rows at either end, one section away from the ends of the supers. This would make each of the rows as follows: Beginning at one end there would be first a section filled with thin foundation, then a bait; then three sections filled with foundation; then a bait; then three of foundation; then another bait; and, last, one of foundation. This is the way I have used my supers for thirty years, if I could only furnish the 1600 partly filled sections from the year before. And I wish to go on record right here as saying that, so far as I can see, a super filled in this way has as good effect toward the prevention of swarming as does the putting-on of the first super of the season filled with all baits. Of course, with all baits and a good colony the *storing* will go on in all of the 44 about equally. With the twelve, storing will commence first in the *baits*, while the foundation is being drawn. But at the end of three or four days there will be little difference. Even the four corner sections will apparently be just as well filled as those at the center, when the whole of the 44 in the super will all come up to completion at the same time.

There is no prettier sight than a super of sections all alike in advancement, with not a cell yet sealed, though filled with water-white honey which sparkles and glistens in the morning sunshine. Not even the whole of the 44 sealed sections, with their snow-white cappings, look nearly so enchanting to me as does this mass of sparkling smoothness, and this is just what I have seen hundreds of times in the first supers of the season when I had enough baits. And where the season allows of their coming to completion thus, the man who could tell which sections contained the baits and which the foundation would have a sharper eye than most apiarists have, to say nothing of those who know of honey only as they buy it in the market.

General Correspondence

WHAT HAS THE SEASON BEEN?

Reports from All Sections of the Country

From the mass of correspondence that has been coming in from day to day we select out, as far as practicable to do so, a sentence or two that will give some idea of the honey season, and what it has been for the locality represented. We append here a list of such letters boiled down to one or two sentences, giving the name and address. These reports relate mainly to the white-clover districts, as will be noted.

ALABAMA

By July 1 I had taken 211 sections of beautiful comb honey from two colonies, spring count.
Selma, Ala., July 6. F. G. RILEY.

It has been a most unusual season here. The winds have been blowing like March weather all the spring, and through the flow of sweet clover, drying out the nectar. We shall do well to get a quarter of a crop.

Letahatchee, Ala., July 30. W. N. RANDOLPH.

CALIFORNIA

Honey crop is a total failure. Bees will probably get enough to winter on.
Paicines, Cal., July 11. GEO. W. MOORE.

We beekeepers have got a "black eye," sure. Nothing doing. Later reports, from higher altitudes, are more favorable.

Descanso, Cal., July 5. E. P. ST. JOHN.

Conditions indicate a small crop.

Standish, Cal., July 11. H. A. HARTMAN.

The honey-flow has not been very good here this season. The spring was late, and the weather was cold.

Nevada City, Cal., July 22. FRED A. THOMAS.

COLORADO

The season is a little backward, but the outlook for an average honey crop is fair.
Canon City, Colo., July 13. W. G. WRIGHT.

The honey crop to date is very poor, owing to cold weather. It can not be over half a crop in Northern Colorado.

Greeley, Colo., July 20. CHAS. ADAMS.

Honey crop in this location will be a little below the average. There are about 1000 colonies in this county, and will average one super each this year.

Canon City, Colo., July 20. V. P. CUTLER.

Prospects for flow are good, as a large quantity of clover is just beginning to bloom, and weather is less windy. The one danger is hail.

Las Animas, Colo., July 9. L. H. SWEETMAN.

Prospects are good in Colorado for a crop this year, though the losses have been heavy, and alfalfa is being cut very early. I believe that more honey will be shipped this year than last if present conditions prevail.

Boulder, Colo., June 25. WESLEY FOSTER.

The outlook for honey from this part of Colorado is not very bright. There are acres and acres of sweet clover, and it never looked better than it does now; but the weather through July has been cloudy and rainy, and bees could not get out to gather honey. I have 250 stands, and have taken off only six cases so far.

Delta, Colo., July 28. GEO. F. LESTER.

According to estimates just made, the honey crop on the Western Slope will total 35 or 40 cars, which includes the output from every station from DeBeque to Montrose. This is considerably in excess of the shipment for last year, as only 22 cars were sent to the buyers, netting the growers about \$80,000. The amount of honey which will be gathered from the apiaries around Montrose this year has been conservatively estimated at between six and seven cars, which is between

one-sixth and one-seventh of the total output. The beemen down the river from Montrose lost a number of bees last winter; but from Montrose south the loss is reported as being very small, and almost a full crop is expected. Each car, it is estimated, contains between 1000 and 1100 cases of honey, and is worth between \$3000 and \$4000.—*Montrose Weekly Press*, July 18.

CONNECTICUT

The honey flow is very poor. The future depends on the weather. The crop is not as good as last year. It has been very dry in this locality.

Bristol, Ct., July 22. MAPLEWOOD APIARY.

IDAHO

First flow light, owing to weak colonies and cool weather. Prospects are fairly good for next flow.
Meridian, Ida., July 10. E. F. ARWATER.

No swarms until after July 9; best white-clover and snowdrop flow we ever had; but the weather is so cool and cloudy that bees work only half the time.
Fraser, Ida., July 12. F. F. GEORGE.

INDIANA

We can not expect much from Indiana and Illinois this year, for two reasons—tremendous winter losses and a short clover crop. What little clover we have is yielding excessively, and weather conditions are fine.

Indianapolis, Ind., July 5. W. S. POWDER.

Abundance of bloom; basswood and white and alsike clover; nectar is flowing very slowly, especially from basswood.

La Porte, Ind., July 5. C. H. WAIR.

Clover flow is practically over; have secured a very small crop. Colonies were in fine shape, and no swarming. Clover did not produce the nectar, from some cause.

Odon, Ind., July 5. A. M. KECK.

Bees are booming; weather ideal; bloom plenty; result, best crop of honey for three years. I am getting 20 cts. per lb. by crate.

Richmond, Ind., July 4. M. H. WOLFER.

We are having a very fair honey-flow from red and white clover. The flow began about July 1; and with the good rain of yesterday it will continue several weeks, we trust. Our 600 colonies are in surprisingly good condition considering the increase.

Hebron, Ind., July 8. F. B. CAVANAGH.

There is an abundance of swarming. Basswood yielded well, but not many trees. White clover is fairly abundant, but does not seem to yield well, so that the prospect for a surplus is very doubtful.

Ladoga, Ind., July 9. DR. J. B. TALMAGE.

ILLINOIS

Clover flow is light—only one week; plenty of bloom yet, but no nectar. Milkweed and basswood yielded well; will get about 40 lbs. comb honey per colony.

Edinburg, Ill., July 18. W. H. STUMM.

The honey-flow thus far has been very good here; but owing to the severe winter losses of bees the honey crop will probably be no larger than last year, although of much better quality.

Beardstown, Ill., July 15. H. W. DOERR.

Half a crop of white honey in this part.

Versailles, Ill., July 15. D. C. CONNELL.

Bees are just finishing the best basswood flow I ever saw—three supers to the strong; three per cent loss last winter.

Hull, Ill., July 6. J. L. BLACKETTER.

The white-clover honey crop has been a failure in this locality. There was an abundance of white-clover bloom, but during this period of the best yield, from May 20 to June 20, we had too much wet and cloudy weather.

Nashville, Ill., July 12. S. P. SCHROEDER.

Bees swarmed in May; have nearly filled brood-chamber; nothing in supers yet, even strong colonies not making much honey.

Mackinaw, Ill., July 11. G. S. ALLEN.

Prospects for a honey crop are a failure with me. I might get 50 lbs. from ten stands.

Pittsfield, Ill., July 5. FRED TROUTNER.

Prospects are good for a big honey crop. White clover is in full bloom.

Freeport, Ill., July 5. A. E. LONG.

IOWA

There seems to be a pretty good honey-flow here at present. There has been much swarming in my yard for a week or ten days.

Leon, Ia., July 4. EDWIN BEVINS.

We have had the best season so far in several years. Clover gave a big yield, and dandelions and willows gave an immense amount early.

Lake City, Ia., July 10. IRVING WERNICK.

Honey flow is over; clover is drying up; strong colonies average about 50 lbs. extracted each; but most colonies are weak, due to hard winter and late spring.

Dixon, Iowa, July 8. E. A. DONEY.

Bees came through the winter in poor condition, and dwindled down badly during April and May. I can not see more than half a crop. Drouth has cut clover and basswood short.

Elkader, Ia., July 22. HERMAN AHRENS.

KANSAS

Basswood, bee clover, and catnip yielded finely. White clover was a total failure.

Tanganoxie, Kan., July 9. CARL BAERNHART.

KENTUCKY

Honey has been coming in very slowly; flow is about over; it will not exceed one-fourth of a crop.

Richmond, Ky., July 5. CLIFTON WEAVER.

There has been too much rain for the honey crop. Plants are growing well; and if the season is favorable from now on we may expect a good fall flow of honey. I have failed to get sweet clover to grow.

Livia, Ky., July 4. HUGH L. LYNN.

The honey crop for Bracken Co. will be about an average one. This is the best flow we ever knew; but there are not enough bees to gather it. The flow is entirely from sweet clover. I have not seen a dozen bees on white clover. I have one colony that will extract at least 250 lbs. of honey.

Bradford, Ky., July 22. M. A. AULICK.

Spring flow was a failure. Bees are very short of stores now. Some extra strong colonies have stored a little dogfennel honey, very dark and slightly bitter. Worst honey season I ever saw.

Kevil, Ky., July 5. J. G. NANCE.

MARYLAND

The honey yield is running from 75 to 125 lbs. to the colony.

Aikin, Md., July 5. J. FORD SEMPERS.

This has been a very good season for bees—much swarming, and the best honey-flow in many years. However, from one-half to two-thirds of the bees died last winter, so that the honey crop will not be large.

Frederick, Md., July 19. F. D. COVELL.

The honey crop in this section is fully up to the average, or a little better—mostly clover.

Lloyds, Md., July 6. JOHN THOMPSON.

MASSACHUSETTS

I do not expect to get over a third of a honey crop this year. Bees worked very little on white clover. I may get a little fall honey, as we are having rains now—almost three inches since the 11th of this month.

Swampscott, Mass., July 24. G. C. GORDON.

The honey crop this season is exceptionally good.

Greenfield, Mass., July 18. L. A. LOVELAND.

MICHIGAN

Up to date, bees are doing finely. My bees wintered well, and swarmed early. I got quite a few natural swarms in May, and some hives have the third super on—very good for this locality. The honey is the whitest I have seen for a long time.

Estey, Mich., July 8. MILO WRIGHT.

The honey crop in Ionia Co. will be very short, owing to the heavy winter loss of more than three-fourths of our bees. Recent rains are favorable for a good late flow.

Ionia, Mich., July 22. A. H. GUERNSEY.

We have been having fine weather for a flow, and the bees are doing well; basswood is just opening. Many bees winter-killed where not well protected, and not strong at beginning of flow.

Highland, Mich., July 8. R. D. MILLS.

I had a good flow of clover and basswood here; plenty of wet to make good fall pasture.

Glenwood, Mich., July 18. E. E. MOTT.

The honey-flow from raspberry and clover is good. Willowherb is out, but yielding slowly; basswood will be in bloom in a few days. Indications point to a good year generally.

Levering, Mich., July 18. J. D. ROBINSON.

We are having a fine honey flow. White clover and raspberries are abundant; not enough bees to take care of it. I had much trouble with spring dwindling; some lost nearly all their bees.

Wolverine, Mich., July 6. L. K. FEICK.

MINNESOTA

Swarms seem to be heavy. White clover is everywhere. The prospects are good.

Aitkin, Minn., July 9. MRS. J. R. DARLING.

My bees are doing fairly well this summer. There was more white clover than there has been for a number of years. I lost half of my bees in the cellar.

Warsaw, Minn., July 22. R. R. RANDALL.

This is certainly a clover year here in Minnesota, with quite a good flow of honey. Basswood is just coming in bloom; plenty of rain for the former, but too much for the latter.

Minneapolis, Minn., July 12. E. T. EDSON.

Despite the fact that clover has bloomed more profusely than it has any year since 1908, the crop of honey from that source will be very light. The reason for the scanty secretion of nectar is likely due to lack of age of the clover, which is not rooted as deeply as should be, most of it having its start from seed late last fall. Basswood bloom is extremely light, and but one-fourth of the trees are blooming. The yield from same will be insignificant.

Chatfield, Minn., July 18. J. J. KADLETZ.

Two-thirds of the white-clover honey is lost owing to two weeks of storms and bad weather. Basswood flow started yesterday; about one-quarter of the bees remain alive after all the drawbacks we have had.

Swanville, Minn., July 17. JOHN S. LIND.

MISSISSIPPI

Light crop of honey, owing to too much rain.

Foxtrap, Miss., July 18. J. E. C. WEAVER.

MISSOURI

There is not one pound of white-clover honey here; basswood, small flow; no prospects.

Marceline, Mo., July 6. IRVING E. LONG.

One hundred per cent of swarming and ten per cent of a honey crop for this part of Missouri.

Fredericktown, Mo., July 22. JAS. BACKLER.

My bees all died last winter but 12 stands; but very little white clover bloomed this season. Bee clover is fair; will probably get 100 lbs. of comb honey.

Gunn City, Mo., July 8. JAS. A. ADAMS.

Clover crop is a failure; basswood good, but not much of it; no surplus unless from fall flowers.

Napton, Mo., July 5. JAS. T. SHACKELFORD.

Prospects for honey are not as good as last year—too much rain, too weak in spring.

Lohman, Mo., July 11. WM. A. BAUMANN.

We are having the best honey flow here that we have had in years. I have some colonies that have made 175 lbs. of section honey.

Morrisville, Mo., July 20. H. C. DAY.

The honey crop here will be about half a yield for clover and basswood. Too dry.

Unionville, Mo., July 8. FRED H. DRURY.

No surplus honey in North Missouri or Southern Iowa; bees will do well to get winter stores.

Unionville, Mo., July 19. E. F. QUIGLEY.

NEBRASKA

We are having a good flow, but it is getting dry; very few bees to gather it.

Cozad, Neb., July 8. THOS. ATKINSON.

There has been a good basswood flow. The weather being too dry, the other plants have produced no nectar.

Plattsmouth, Neb., July 9. J. N. NEILSON.

The honey-flow is the best in many years. Every thing seems to secrete well. Some have secured already three supers to the colony.

Humboldt, Neb., July 6. J. L. GANDY.

The honey prospects in this vicinity are very poor. A severe drouth is setting in, and the only honey-plants are the milkweed and sweet clover. White clover has entirely disappeared; so if a rain does not soon come, only the strong colonies will make enough for winter. No honey for market.

Pawnee City, Neb., July 11. J. E. BILY.

NEW HAMPSHIRE

The honey season has been fair so far, but would have been much better if it had not been for the cold dry weather in June. We are now having it very warm, with lots of swarming.

Pittsfield, N. H., July 8. HERBERT C. TOWLE.

NEW JERSEY

I report from white clover; 35 colonies produced 3550 lbs.; buckwheat not in bloom yet.

Stanton, N. J., July 22. T. K. COLE.

Never saw so much white clover here before; but its season is just ended, hastened by drouth and heat.

Lyndhurst, N. J., July 5. C. D. CHENEY.

NEW MEXICO

Outlook for honey in Pecos Valley is very gloomy.

Roswell, N. M., July 5. J. W. E. BASHAM.

NEW YORK

We have the best clover yield in a number of years.

Oswego, N. Y. F. H. CYRENIUS.

The cold heavy rains during fruit-bloom made it impossible for bees to work. It is about a month since we have had any rain, therefore the flowers are dying. Bees swarmed a month late this year (June 15).

Kendall, N. Y., July 9. T. H. WING.

I expect to have at least six tons of honey from 101 colonies, spring count.

Middleville, N. Y., July 17. F. H. STODDARD.

Nearly all the reports so far received say "Bees doing finely." Mr. Dines was here this morning, and said he took off 2000 lbs. of comb honey yesterday, and is to take off more to-day. He increased from 180 to 316 colonies. I believe the bees are doing nicely up in Jefferson and St. Lawrence counties, but have had very few reports from there.

Syracuse, N. Y., July 24. F. A. SALISBURY.

We have been getting very favorable reports, and it looks as though there would be a very good crop of clover and basswood. For the last week or two business has increased, which would indicate that beekeepers must be getting honey.

New York City, July 2. NEW YORK BRANCH.

The honey crop here, nine miles south of Syracuse, will be the best in years. There was much white clover and basswood, and it looks like lots of sweet clover.

Fayetteville, N. Y. E. J. BENNETT.

The honey crop is a failure here. First, very wet and cold; then protracted drouth. Surplus is scarce.

Russell, N. Y., July 15. HYLE CRAWFORD.

Tremendous flow since June 20—still on. Basswood is just starting; looks fine. Hives are five to seven stories high. Great is a-sike.

Randolph, N. Y., July 5. GEO. SHIBER.

The long-continued drouth has caused a falling-off in the honey crop in this section; but bees generally are doing well—plenty of early clover honey gathered; lots of absconding swarms; terrible loss in spring dwindling in this section.

Clifton Park, N. Y., July 22. A. L. DOWS.

NORTH CAROLINA

In Western North Carolina the crop will be above the average. Poplar and basswood give an extra good yield.

Cane River, N. C., July 23. W. S. EDWARDS.

The season is fairly good; average about 50 lbs. comb and 11 extracted.

Chadbourn, N. C., July 9. F. R. JORDAN.

OHIO

Fair prospects for a honey crop here.

Spargursville, O., July 7. J. R. COOPER.

Bees are carrying in rapidly now, and have already stored a good amount; and if we have rain to prolong the life of the clover the yield promises to be above the average.

Barnesville, O., July 9. T. D. EVANS.

We are having here in this vicinity one of the best honey-flows on record for this season of the year.

Toledo, O., June 14.

S. J. GRIGGS & CO.

We had a rich honey-flow from May 12 to 28, from locust and poplar. It caused the bees to work in the supers, and we had home-grown honey on the market June 8—very unusual for this locality. Then there was a dearth for two weeks; but since June 16 honey has been coming in freely, mostly from white and sweet clover.

Cincinnati, O., July 10.

REV. E. R. WAGNER.

I am getting a fine crop of mainly snow-white comb honey. Swarming is not a side issue with our bees, but we are getting it under ordinary control at this date. I am having no trouble in disposing of honey in case lots at 20 cts. a pound.

GLENWOOD BEARD.

Magnetic Springs, O., July 1.

The honey flow is the best in ten years—good rain and plenty of white clover.

Lima, Ohio, July 18.

J. A. MOONEY.

Best pasture in ten years; troubled much with swarming, but a fine crop of honey already secured.

Columbiana, O., July 8.

D. M. MCGAFFICK.

In this section the honey crop will be almost an entire failure.

Jerry City, O., July 9.

S. C. REARICK.

The drouth in May and June was unprecedented. Not much honey here this season.

Bloomdale, O., July 6.

M. N. SIMON.

Clover honey was a short crop. Basswood is good—just coming to a close; average about two supers to a colony—70 lbs.

Delphos, O., July 15.

J. H. ALLEMIER.

I believe I have never seen a better honey-flow locally than is on at present. I was surprised in looking over the bees to-day. Bees that I thought had room enough had to have additional supers.

Zanesville, O., July 6.

E. W. PEIRCE.

Reports from bees in this part are not very encouraging—plenty of bees, hives heavy, but few supers on, but bees do not go up into them at all.

Hebron, O., July 11.

MRS. FRANK MCGLADE.

We will secure a good crop of the finest white honey in this section, close to an average of 75 sections per colony, and gathered rapidly, making a predominance of fancy grade.

Beaumont, O., July 12.

J. C. ATKINSON.

ONTARIO

A good colony, but not the best, gained 13 lbs. on the scale yesterday. We should have at least 40,000 lbs., white crop.

Nelles Corners, Ont., July 12.

R. & H.

Bumper crop, bumper quality; bumper swarms; bumper clover flow—six weeks. Beat that if you can.

Toronto, Ont., July 19.

CHAS. E. HOPPER.

PENNSYLVANIA

The crop report for my section of the State shows one of the most wonderful honey-flows that it has ever been my experience to witness.

Philadelphia, Pa., July 20.

GEO. M. STEELE.

My bees are doing finely this year. Some have filled two supers already.

Allegheny, Pa., July 18.

J. A. SPACHT.

This is certainly a great year for honey. The little fellows will pay off the back debt; 108 lbs. from one colony, comb honey.

Washington, Pa., July 8.

J. C. MCNEELY.

It is a very good white-clover yield of honey this year.

Corydon, Pa., July 16.

GEO. WHITCOMB.

Quite a number of bees froze last winter, and some of the remaining are very weak, so they were slow gathering up, but are doing very well now.

McVeytown, Pa., July 10.

J. H. BYLER.

We are having a good honey yield this season all through this section of the county.

New Holland, Pa., July 8.

H. W. MARTIN.

The honey crop will be short in this locality from present indications. Clover is about over, and less than half the bees are at work in supers. I can not speak except from this immediate locality.

Linden, Pa., July 8.

DAVID L. YOUNG.

The yield of white-clover honey is above the average, in both quantity and quality; all over by July 1, owing to drouth the last three weeks of the honey season.

Doylestown, Pa., July 20.

T. C. POTTER.

This has been the poorest year so far for many a year—no clover honey yet, and we don't expect any.

Dayton, Pa., July 25.

J. L. RIMER.

Owing to six frosts in June and one July 1, then the severe drouth from June 20 to July 10, the red raspberry and white clover crop of honey is only a fair one. Bees were too weak to gather a good crop. Good rains yesterday and to-day give us hopes of a good crop of basswood (just opening).

MRS. AFARETTA BONSER.

Costello, Pa., July 11.

QUEBEC

Clover is at its height, and the bees are booming, as the weather is ideal for the secretion of honey. The season bids fair for a bumper crop in this province.

Knowlton, Que., July 5.

J. RAYMOND BALL.

TENNESSEE

This is an exceptionally good honey season here. White clover produced about 36 lbs. per colony. Basswood is now in bloom, and bees are booming.

Harms, Tenn., July 8.

J. A. BEARDEN.

The indications here for a good honey crop are not as they were two weeks ago; however, I think the crop will be very good.

Lebanon, Tenn., July 22.

ROBT. HUDSON.

We have just harvested the best crop of honey I have ever known; fine prospect for a fall flow.

Morristown, Tenn., July 19.

W. A. SPANGLER.

TEXAS

The honey crop in Southwest Texas this season will be an entire failure. In fact, if we do not have some kind of honey flow this fall I am afraid most of the bees will have to be fed.

Jourdanton, Tex., July 10.

M. A. OSBURN.

UTAH

We have a poor prospect for a honey crop this season. The alfalfa weevil got all the first crop of lucerne. Bees wintered poorly.

Hooper, Utah, July 10.

SOPHUS OLSEN.

VERMONT

I have been crowded with my bees this summer—seven colonies. I have taken from them 150 lbs. of comb honey.

Albany, Vt., July 13.

J. M. CARTER.

Bees were gathering honey rapidly from clover, but were cut off by drouth. Basswood is yet to come. Crop is uncertain—one-third or more expected.

Shoreham, Vt., July 8.

R. H. HOLMES.

VIRGINIA

Trade indications point to the best honey-flow for years—mostly of white clover of fine quality.

Staunton, Va., July 5.

W. E. TRIBBETT.

The flow has been good up to this time, and prospects are for a better crop than usual this year.

CHAS. T. THOMPSON.

New Glasgow, Va., July 10.

The prospect is very bright indeed for a good crop of honey through the southwestern portion of Virginia. In this particular section it is the best we have had for three years.

Troutville, Va., July 5.

C. E. LAYMAN.

WEST VIRGINIA

Prospects are fine for a good crop of honey. Most colonies have three supers pretty well filled.

Maud, W. V., July 4.

FRANK P. COOK.

My honey crop this year is 120 sections per colony, spring count. Honey is finished the nicest I ever saw.

Kerens, W. Va., July 23.

C. R. MILLER.

We have an unusually heavy flow of nectar. This, together with the fact that bees wintered better than usual, gives the largest yield for years.

Miami, W. Va., July 22.

JOHN D. THOMAS.

Honey flow commenced June 25, lasting to July 10. From 47 colonies I shall get 1600 pounds of comb honey, being an average yield for this locality. The sources of honey are sumac, cottonweed, chestnut, and white clover.

Pennsboro, W. Va., July 22.

WASHINGTON

Bees bred up well with large brood-chambers; first flow good, then three weeks cloudy weather. Insects have destroyed willowherb, but it may bloom later; clover is not yet past. Little honey taken; prospects poor; a fair amount of swarming. I do not expect any more honey.

Yacolt, Wash., July 15.

H. E. HARRINGTON.

WISCONSIN

No surplus honey in Dane Co.; 90 per cent of the bees died last winter from dysentery and continued cold weather.

Mt. Horeb, Wis., July 10.

L. J. BERGH.

The clover crop is good; weather favorable; fair crop of honey secured. As soon as basswood commenced to bloom, weather turned unfavorable. There will be very little basswood honey in this locality this year. White honey crop will be short here.

Rock Elm, Wis., July 22.

B. J. THOMPSON.

Crop outlook is good here. Bees are working finely. We have had two rains here, which saved our crop.

Augusta, Wis., July 5.

GUS DITTMER Co.

No clover this year in this locality. I just took a trip around the outskirts of Milwaukee, and I notice that even the sweet clover seems to have died out where other years there were miles of it. Basswood is promising, but there is not enough of it, and but few bees left to gather what there is.

R. RODENBERGER.

Menomonee Falls, Wis., July 8.

[In the way of a general summary we may say that the indications so far point to the largest crop of clover honey in years—at least we do not remember the time in over a decade when there were so many favorable reports. As before stated, had it not been for winter losses the large yield of clover would have a strong tendency to weaken prices on Western alfalfa and California sage. However, we do not expect to see any great reduction, because there are a number of sections in the West where alfalfa has not given a large yield. The season in New Mexico and California generally has not been up to the average; but until we can get more definite reports of what the clover crop has been in the East, it will be hard to predict at this time what the market will be. We have been informed that buyers are in the West trying to corral the crop. If they succeed in getting hold of the most of it, and hold prices up, the apparently large yield of clover will not weaken the general market.]

Texas and Florida still report a poor season.

If one will go over these reports carefully he will find one section in the State where the season has been a failure, and another section of the same State where there has been a heavy yield. The shortage in one place and the abundance in another will just about hold things even, with the result that clover honey (for which there is always a good demand) should not drop materially in price if at all. In a general way it will be observed that the clover crop has been better in the more eastern States. In Indiana and Illinois the season has been a little off.—ED.]



Camp outfit, standing by a mammoth blackberry bush, Willamette Valley, Oregon.

A "PROSPECTING" TRIP THROUGH OREGON

BY E. F. ATWATER

Early in October, 1909, our bees being ready for winter, and the greater part of our crop marketed, the writer and Mr. Earle Dilatush took the train to The Dalles, Oregon, and from there to Portland by steamer on the Columbia River, one of the most beautiful scenic trips in the West.

At Portland we purchased a camp wagon and a team, and, outfitting with a liberal supply of fruits and nuts, and other "raw foods," we started south through the wonderfully beautiful Willamette Valley.

With two cameras and hundreds of plates we expected to have an interesting

pictorial record of our trip, with a special eye to any thing connected with bees and beekeeping.

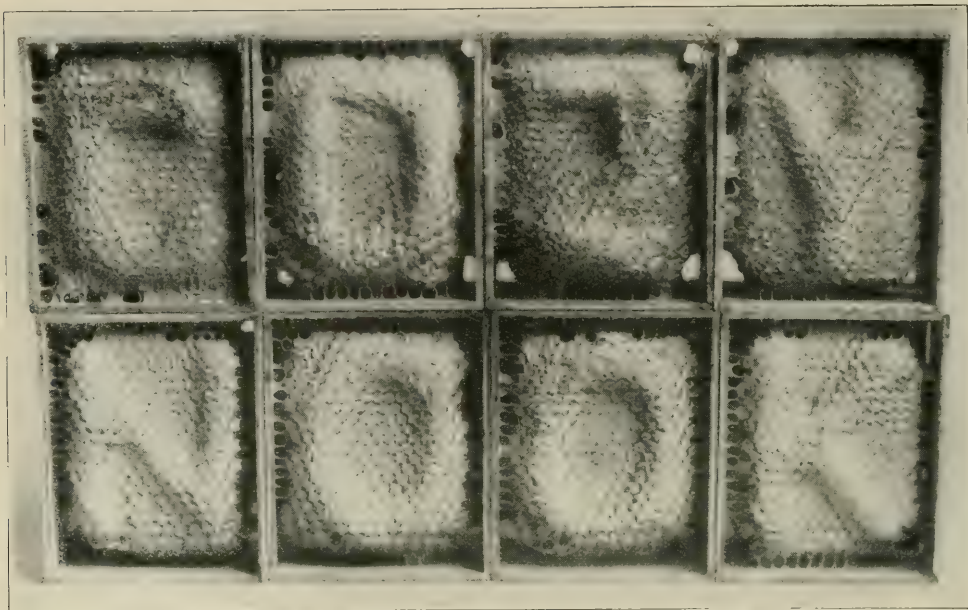
Perhaps the season had been unusually unfavorable through the Willamette Valley; but the honey that we purchased or tasted along the way was probably the vilest concoction that a bee was ever forced by dire necessity to store in waxen cells. Through the whole length of that beautiful valley, not one apiary, of any considerable size, was seen or heard of, though at one place we found the young lady of the house quite up to date, and purchased two sections of so-called "maple honey," of light greenish color and delicious aroma; but, alas! to my taste at least, it was of very inferior flavor.



A shed apiary, typical of those found in the Willamette Valley, Oregon.

The little shed apiary here illustrated is, perhaps, a typical Willamette Valley beeyard. The sheds roofed with old split cedar shakes serve to protect the hives from the excessive winter rainfall.

The hives are about like an eight-frame Jumbo of extra depth, taking the regular eight-frame super, while their occupants are usually of the large brown German type, or hybrids. At Woodburn, inquiry for C. T. Bon-



A sample of how bees can be made to spell. See Mr. Arthur's letter.

ney, at one time a contributor to the *Review*, revealed that he had removed to Arizona.

Passing over minor ranges of mountains, rich with fern and vine, we arrived in the Rogue River Valley, where alfalfa is common, and great orchards ship trainloads of the finest fruits to the world's markets.

At Central Point we found an up-to-date beekeeper and rancher, and here replenished our supply of alfalfa honey.

Inquiry at Medford revealed the presence in that community of another beekeeper having 200 or more colonies; but as we were unable to find him we left between showers for Ashland and the summit of the Siskiyou Mountains. We waited two days at the base of the mountains for the rain to cease, and then made the climb without difficulty. Down long grades, through green ravines and valleys, here and there a little field of alfalfa brightened the eyes of the travelers until, in Siskiyou Co., California, we pulled up one night at a farmhouse where about 100 two or three story hives adorned the landscape. We spent the night with good Mr. and Mrs. Brown, discussing bees and locations, pictures and climate, until a late hour.

Near Kalamathon we found a dilapidated apiary where once some old bee hermit held forth, but now far on the road to extinction.

At Chico, where, a few years before, the government had stationed John M. Rankin,

with a government experiment apiary, we expected to revel in good bee talk again; but, no. A long walk to the government gardens showed us that the bees had been sold and the work abandoned.

At Nicolaus, seedy and forlorn, the home of the carpet grass, formerly the home of the Tyler Brothers, bee kings of Nevada and California, we met a beekeeper of some 500 colonies who was about as communicative as a clam; so, after sampling the honey of the region at the corner store, we went on our way.

We ended our trip at Sacramento, as the winter rains made travel any thing but pleasant.

As a whole it seemed to us that the vast territory from Portland to Sacramento was about as poor bee-territory as could be located on the map, with here and there a little oasis where fair crops may be had.

After a few days at Sacramento I took the train for Idaho, while Mr. Dilatush went on by train to the sage and orange apiaries of the South.

Meridian, Idaho, Jan. 25.

[In 1901 we went over that same territory, and our conclusion was that it was by no means the equal of the central part of California nor yet the southern. We are not quite prepared to believe, however, that it is poor territory, for we believe that, when population increases, some fine bee-ranges will be found.—ED.]

BEES THAT CAN SPELL

BY J. WARREN ARTHUR

Under separate cover I am sending a photo of the honey that I exhibited at our fair last fall. Some two or more years ago you spoke of bees robbing from carloads of honey shipped to you, and you said it seemed as if the bees could read the words "Big Four" on the car. Ours can spell. We call our home "Cozy Nook," and the bees spelled it out without trouble when I gave them the copy. The C and Z were slightly crushed, and were bleeding, which shows somewhat in the photo. The Z was not capped as white and pretty as some of the others.

Springfield, O., March 6.

[There are beekeepers who can make their bees "spell" if they only know how. Perhaps our correspondent will be willing to explain how he did it. In the meantime we should be pleased to receive short articles from others on how the trick is performed.—ED.]

A FAMILY OF EIGHT THAT EATS FIVE POUNDS OF HONEY A DAY

BY DAVID E. DOBBS

I believe I am the pioneer beekeeper of Koochiching Co., Minn., which is about as far north as one can live in the United States. I was born in Brown Co., Ind., in 1871, and became interested in bees in 1881.

My father had kept bees for years, but in box hives. At this age I induced him to buy some Italian bees and movable-frame hives. He told me he expected me to take care of the bees from that time on, so you may be sure that pleased me. I was the youngest of five boys of my father's family. I was married when 25 years old, and now have five boys and one girl.

I kept bees continuously until 1902, when my family and I started for Northern Minnesota, where we took up a homestead in the wilderness, where there were lots of moose, deer, wolves, and mosquitoes to shoot of which I had my share. We had lots of hardships in this country; but in 1908 I bought a colony of bees of F. A. Gray, of Redwood Falls, Minn. I received them May 12, after a confinement of about 15 days. That year I increased them to four colonies and took 200 lbs. of honey, and wintered them without loss. In 1909 I increased to 17 full colonies, but took only 125 lbs. of honey, and had to feed 300 of sugar. I again wintered them without loss, so that in 1910 I commenced with the 17 and took 3000 lbs. of extracted honey, or over 176 lbs. per colony, and increased to 34 colonies. In 1911 I commenced with 34 colonies and took 7000 lbs. of honey, of which 6000 was extracted and 1000 comb honey—an average of over 200 lbs. per colony, and increased to 69 colonies.

My honey that I have sold has averaged me 14 cts. per lb. We believe in practicing what we preach, as we use about 5 lbs. of



A steam melting and rendering outfit for old combs. See next page.



David E. Dobbs and his family of "consumers" who, besides helping to produce honey, eat five pounds of it a day.

honey per day, and have it at every meal.
Indus, Minn., Feb. 24.

[Five pounds a day! That comes pretty near if not quite up to the high record of daily family consumption of honey. We should like to inquire if there is another family that can beat it. The families that are large consumers of honey appear to be healthy people. Aside from the sweets in fruit, honey is the only sweet available to man without special treatment. We know that the sugars in fruits are healthful and nourishing. In the same way we know that honey is equally so; but because it is more concentrated, a less quantity can be taken at a time.—Ed.]

A STEAM-BOILER OWNED BY THREE BEE-KEEPERS FOR RENDERING OLD COMBS

BY P. H. BALES

I am sending you a picture of our wax-melting outfit which has given us such good satisfaction that it may be of interest to others. Two of my neighbor beekeepers went in with me so the expense was not much for any one of us.

The outfit consists of a steam-boiler, a steam reservoir, or tank, and a Root wax-press. The tank is 6 ft. long, 20 in. wide, and 22 in. deep, with a screen 11 in. from the top to hold the old combs that are melted by steam from the pipe just underneath,

which is perforated the full length of the tank. The steam is turned into this pipe, and it strikes the screen from below. There is room for the melted wax below the pipe, and a faucet in the bottom of the tank for drawing it off. The lid fits tight.

The wax-press is attached to the boiler; and any amount of steam can be turned in at will. We now have the whole outfit in a tight room to keep out bees.

Hanford, Cal., May 3.

[There is nothing that can be compared to steam for heating water or for cleaning wax or propolis off from articles used in the apiary. Steam can not heat water enough to do any damage to wax; and where a beekeeper can have access to it he is much more fortunate than those who have to depend on stoves or outdoor arches. Usually it is not practicable for the beekeeper to own his own boiler, as the amount of use he can get out of it would not warrant the first cost. Small boilers can usually be obtained at an expense of from fifty to sixty dollars.—Ed.]

PROOF THAT BEES THIN DOWN THE BASE OF COMB FOUNDATION

BY JOSEPH H. PETERSON

I have often seen the statement that bees seldom or never thin down the bases of cells in foundation; but of late in examin-

ing combs I have noticed some very marked examples that seem to contradict that statement. I have had my partner, Mr. A. H. Wileox, take a picture of one by transmitted light, which shows, although somewhat imperfectly, the very noticeable difference mentioned above.

At the lower left-hand corner, where the wire is fastened, is a three-cornered patch of the original foundation. Next is a smaller patch of partly drawn and thinned-base foundation. The rest of the picture shows varying degrees of drawn comb, all of which has the base reduced to a very thin transparent condition. At the upper right-hand corner the cells are deep and slanting, so that the camera could not look directly into them, as was the case in the rest of the picture.

The foundation used in this case was home made, running about $6\frac{1}{2}$ sheets to the pound.

Ogden, Utah, March 11.

[Your last sentence explains why your bees thinned down the bases of the foundation. Six and a half sheets to the pound virtually makes what we call "heavy brood" foundation. When the base is thick, as it is in such sheets, bees will, as a rule, thin it down; but when ordinary super or extra-thin super foundation is used, the base is so

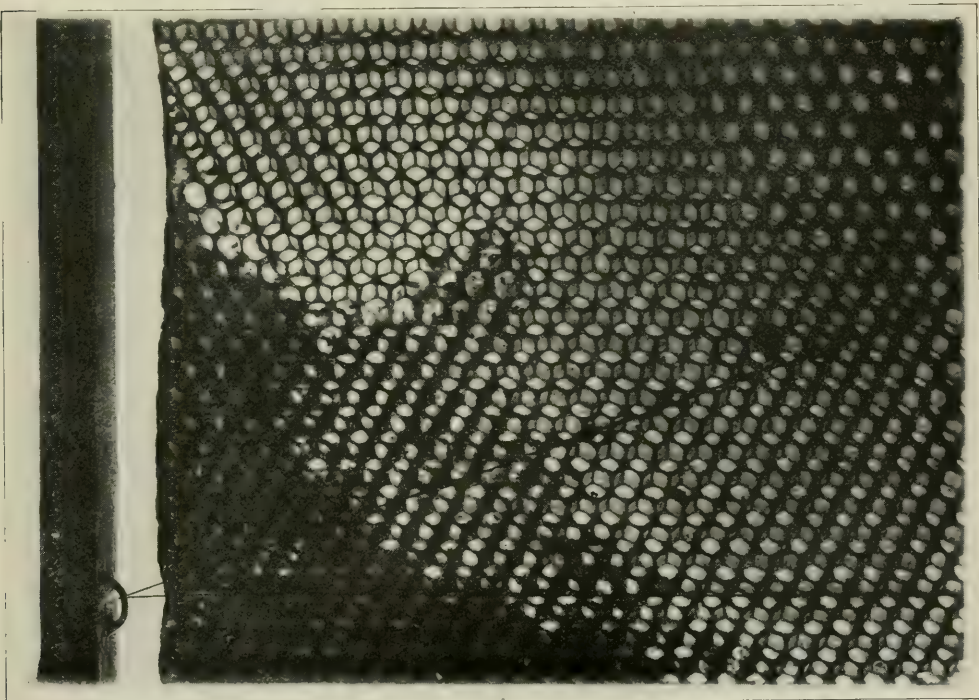
near the thinness that we find in natural comb that they generally leave it without alteration. Mr. E. B. Weed, the inventor of the Weed process foundation and the machinery for making it, conducted numerous experiments years ago, the result of which showed that, when the base of foundation is almost as thin as the base of natural comb, they will not alter it; but, no matter how thick the *walls* of heavy foundation are, they will thin them down to the natural thickness—3-1000 of an inch.—Ed.]

BEEKEEPING FOR WOMEN

BY AVALVE C. ROBBINS

Sister Beals, of Lewiston, Me., has broken the ice. I too have three nice colonies of bees. I buy my inside fixings by the hundred in flat, and so have the same enjoyment of pounding the nails (not fingers, for all women do not pound their fingers).

I had been looking for some time for a business whereby I could be at home and attend to my wifely duties and still feel as though I were earning some money. So my husband finally invested about \$33.00 for me, and I find beekeeping just the thing. I will succeed or "bust."



The lower left-hand corner shows the original foundation. The lighter portions show how the bees thinned down the base.

I have hived two swarms this week, following expert Alpaugh's method with the dishpan and sheet, with very good success indeed—no stings at all, and five hives in stock.

Why don't more women keep bees?

You know they say a woman is determined to have the last word. It is my opinion that, if more women would show their determination in beekeeping, there would be more peace and harmony in our world.

South Berwick, Me.

SEVEN "OUTDOOR" COMBS, 15 INCHES WIDE AND 2½ FEET LONG

BY HARRY HEWITT

I commenced keeping bees only a year ago, taking up wild swarms, which seem to be quite plentiful in this section. I found 19 bee-trees last summer.

The other day I made a unique find which may interest you. I found bees feeding on huckleberry blooms, and I "lined" them 1½ miles before finding the swarm. They have made their home among the top branches of a small oak, about ten feet from the ground. The combs, quite exposed, are about 2½ feet long by 14 or 15 inches wide, and the bunch is about seven combs thick. I should judge the nest to be quite a year old.

Apopka, Fla., Jan. 29.



"Outdoor" colony in Florida that have lived in these exposed combs over a year.

REPORT OF THE SEASON AROUND CINCINNATI

How the Large Acreages of Sweet Clover were Made Available for the Bees

BY HENRY REDDERT

On page 430, July 15, I notice the honey report up to July 9. No report being included from this district I will try to give as accurate a report as possible.

Up to date (July 18) sweet and white clover are still in full bloom. It rained here every day this month except one. Clover began blooming about June 15, and on June 20 it was in full bloom. The bees have worked every day since; and, according to present indications, clover will bloom this entire month and into August. New bloom is forming as fast as the old goes to seed. Fruit bloom, locust, dandelion, Chinese aster, all were good forerunners of the clover yield; and beekeepers having strong colonies this spring will harvest a heavy crop.

Under the above conditions bees built up strong, and swarmed heavily at the beginning of the season. Mine began swarming the last week in May, and kept it up two weeks in June. All the swarms will give a surplus. Besides, the parent colonies built up strong after swarming, assuring a heavy crop. All the beekeepers I came in contact with inform me the same conditions prevail in their apiaries. However, there are some heavy winter losses, due to the scant honey crop of last season: One man lost 30 colonies out of 90; another, 37 out of 40, having but 3 left. This last named may also have had disease; but I can not verify it, as I have the report second hand. We all lost more or less; but the above named are among the heaviest losses.

There are many people in the bee business with very little theoretical experience in the beginning of their career, making success impossible, and dangerous to their neighbors. These, of course, will have no heavy yield to report—probably none; but, taken as a whole, we have a good honey year for those with good healthy colonies.

Sweet clover has had a bounce year. All the hills and valleys are covered. Some people cut it down (but not many) about June 10; but I notice that some clover is now in full bloom. We petitioned our Mayor, Henry T. Hunt, to request the council to see to it that the sweet clover be saved when the weeds were cut. Before he sent our letter to the council, he gave it to the reporters of the daily papers. The next day it appeared in every paper, Eng-



Warner's flat covers roofed with painted tin.

FLAT TIN COVERS

Their Use in New York

BY L. G. WARNER.

Our apiaries, two in number, consisting of 301 hives at present, are situated in the pleasant and fertile Schoharie Valley, about $1\frac{1}{2}$ miles from the village of Middleburgh, N. Y. Our honey sources consist of the numerous wild plants and trees usually found in a hilly country of this latitude—some fruit trees for spring brood-rearing; clovers — alsike,

lish and German alike, and I noticed in the suburbs where people cut their lawns short at intervals heretofore, most of them are now in full bloom. "A stitch in time saves nine;" also saves the honey for the bees. However, tons of honey are going to waste for lack of bees.

The beekeepers of Hamilton and Butler counties are making efforts to make a display of bees, honey, wax, and bee supplies at their respective county fairs this fall. The Hamilton County Fair will be held at the Carthage fairgrounds, August 14 to 17. Our association will hold a special meeting for this purpose the last Monday in July. All members are invited to take part in this, our first attempt at public display of bees and their products. The meeting is to be held at the headquarters, 2146 Central Ave., Cincinnati, O., at 7:45 P.M.

[We will explain to our readers that Mr. Henry Reddert is a "live wire" on the subject of bees—and, moreover, he seems to have in mind the greatest good to the greatest number. We believe it is largely through his influence that sweet clover has been made available to the bees in and about Cincinnati. Of course, he has a beekeepers' society back of him, and there is the secret. City fathers and legislators will listen to a request from an *organized body* of men when they will utterly ignore the request of an individual. What the Hamilton Co. Beekeepers' Association has been able to accomplish, others should be able to do. It only needs one "live wire" to stir up the rest to action. Does that mean you, dear reader; and are you looking after your county fair?—ED.]

white, and sweet, in their season (when it is favorable), and buckwheat for a fall crop.

The acreage of buckwheat some years is very satisfactory, depending on the amount sown by the surrounding farmers. The past year, weather conditions were unfavorable, so all we could do was to look at the bloom, and—*wish*. Goldenrod and wild asters sometimes provide a late sustenance, but can not be relied on.

We produce mostly comb honey, using a hive taking eight frames and dummy. The hive is $18\frac{1}{4}$ inches long, $14\frac{1}{2}$ inches wide, and $11\frac{1}{2}$ deep. Our hive-covers, as shown in the photograph, are flat, having a two-inch rim all around the under side to prevent rain from driving in; also to prevent their being easily blown off by the wind. The entire top and about half of the width of the rim is covered with a sheet of well-painted tin. All of our hives and covers are painted white, as we think they last enough longer when painted to pay, regardless of the improvement in looks. This cover has been adopted after years of experiment with box tops, flat boards, covers with end strips, and others.

In connection with these covers we use an oilcloth or other heavy bagging cloth over the frames or boxes to prevent the cover from being glued down with propolis, this facilitating handling the bees without needless jarring when opening the hives.

Middleburgh, N. Y., Feb. 8.

[The style of telescoping covers shown in the illustration with a thin super cover beneath are becoming more popular.—ED.]

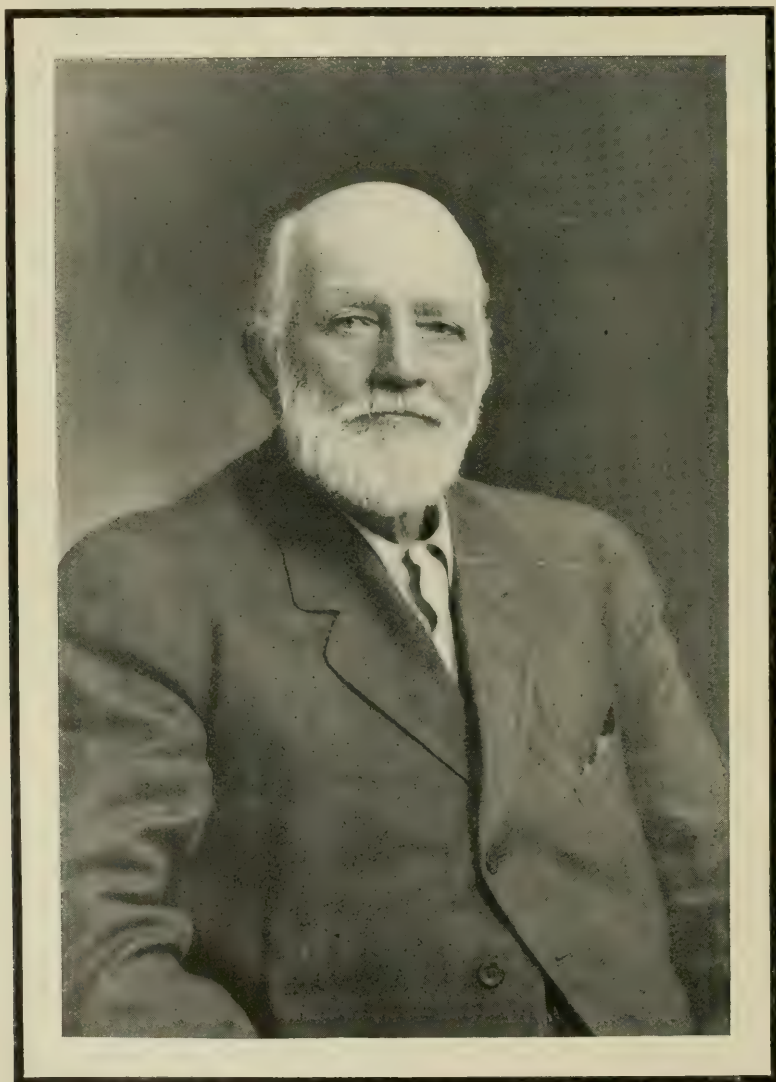
A NUMBERED STAKE IN FRONT OF EVERY GROUP OF THREE HIVES

BY J. W. SOUTHWOOD

Louis H. Scholl, in the May 15th issue, calls up the question of hive numbering. It may be true that what is satisfactory to one may not be to another. Yet what is satisfactory to one may be of benefit to others, even if not entirely satisfactory. With this thought in view I will give my method of numbering hives, which has proven, after several years' test, the most

satisfactory of any that I have tried, and I have tried several others.

My hive-stands are a little more than six feet long, and hold three hives, one at each end and one in the middle, all facing the south. About two or more feet in front of the middle hive of each group of three is placed a stake which is painted white. These stakes contain the numbers in black or blue figures. In order that the figures may be larger, they are arranged so as to read vertically if more than a single figure is used to express the number of the colony.



J. G. Corey, of Santa Paula, Cal., in his 84th year—the man who, years ago, carried a colony of bees over 100 miles across the mountains, making a part of the trip on snowshoes. See department Our Homes, by A. I. Root.

These stakes are square at the top, and are an inch and a half or more in diameter; and when set in the ground they project ten or more inches above the ground. I commence at the northwest corner and number across one row of groups, and then go back to the west and number across another row, just as one would do in reading a page. On the west side of the first stake is No. 1; on both the north and south side is No. 2; and on the east side is No. 3, and so on with each group. With this arrangement a person soon learns the location each number occupies. The number designating the middle hive of each group contains the number of the colony, both on the side next to the hive and also on the opposite side of the stake. By this arrangement a person standing in any position in the apiary can see one or more of the numbers of the group, or a group next to the group which it is desired to notice. If desired, the stakes can easily be moved while mowing the aisle, and then set back in their places.

I purchased a blank book of sufficient size, and numbered the pages up to the number of colonies in the apiary. Then each year I make the date of the year and then make a record of each colony, whatever is desired. When clipping queens during apple bloom I note whether the queen is old or young, and the condition of the colony as to the strength and amount of stores. I also record when special queens are given, etc. As I hive the swarm, when permitted to swarm, on the old stand, or if I use the Alexander method, somewhat modified, of making increase, the old queen always remains on the old stand unless, for some other purpose, she is changed; then a record of the change is made. With this method I can readily refer to any number desired, both in the book and also in the apiary.

When several colonies alike are requiring attention I place the numbers on a little board and put it in my tool-box, where it is convenient.

Huntington, Ind.

[Like Mr. Southwood we favor putting hive numbers on stakes rather than on the hives. At our home yard, a substantial hard-wood stake with cross-arms on it supports the grapevine which stands just in the rear of each hive. Our hive numbers will be found about two feet from the ground, tacked to the north side. The advantage of this arrangement is that the hive may be shifted about, leaving the numbers right where they should be found. When numbers are attached to hives, and it becomes necessary to move any particu-

lar hive, the number tag must be removed or else it causes endless confusion in trying to find that particular hive number out of its regular position. When the apiarist goes through his yard he can make his records on a card index.

At the present time, however, we are using a scheme of wooden tablets for records on the hives. But we still use numbers to designate places where certain queens, brood, or other material may be found. We will illustrate this scheme a little later.

One side of the wooden tablet is painted red, and the other white. The latter holds the record in leadpencil. When the former is turned outward it shows that the colony needs attention. The wooden tablets are held in place on the side of the hive by means of brass spring clips.—Ed.]

HIVE FOR USE DURING A TIME WHEN ROBBERERS ARE BAD

A Bee-cage Designed to Fit the Top of the Hive

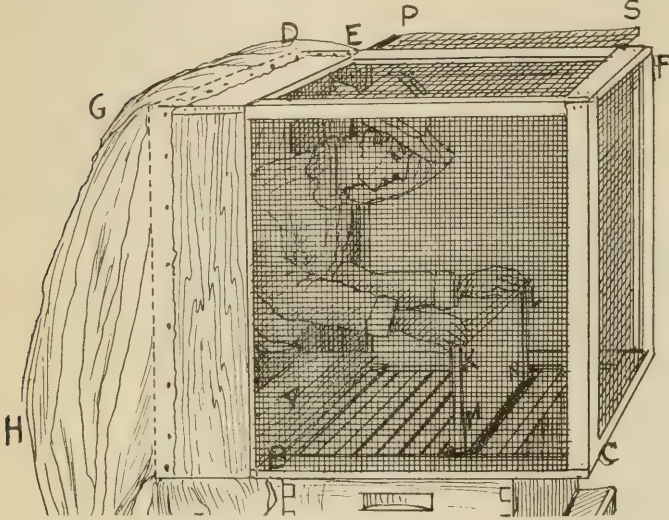
BY LANE S. LEONARD

Every beeman knows what it is to open hives and work with bees when honey is scarce in the field, and surrounding bees eager for robbing; yet various things often make this unavoidable. Where hives stand on benches or on the side of a hill, or close together, a bee-tent is out of the question. Careful management at such times often deluded me into the idea that, in spite of the annoying robbers, I had little or no loss by them; yet by the next morning many (sometimes very many) dead bees would lie in front of the hives where I had worked.

To overcome the trouble I constructed what, for the want of a better name, I call a bee-cage. It is about 3 ft. high, and a little over 2 ft. wide. The operator, who stands at the back of the cage, is shielded by burlap tacked on the rear of the top and rear edges of the sides and bottom. It is designed to rest on top of the hive or on the super after the hive-cover is removed. The bottom of the cage is provided with an opening to match the opening of the hive, so that, when the cage rests on top of the hive, the opening in the bottom fits snug and even with that of the hive; and, being wider than the hive, it affords sufficient room and unobstructed access to the frames, and enables one to handle them at will. A bee-escape is arranged at the top so that any bees that crawl up the screen will find their way out.

The cage being made of light half-inch boards, with wire gauze for the front and sides, is easily handled, especially after a

little practice in handling it; but as it is to be used in troublous times a person can not be too careful not to have the hive entrance unduly large and not to puff smoke on the guards at the entrance, for they may soon be needed there. If there is an inside as well as an outside cover, so much the better, assuming there is only one cover.



We have the smoker ready, and also a clean piece of cloth or burlap to lay over the open hive as soon as the cover is removed; then after the cage is set on top of that, we first tip one end of the cage up to remove that end inwardly, and then tip the other end; then take the cloth away, and not a bee will get in. This done, it is a pleasure to work with the colony or lift out frames. A little puff of smoke on the bees in the hive subdues them. The roof of the cage gives a very agreeable shade, and in cool weather the cage is a protection against chilling the unsealed brood.

[At certain seasons of the year, especially right after a heavy flow of honey, and when all the nectar supply has ceased, robbers are particularly troublesome. At such times we find a cage very convenient, and at times indispensable. The form of cage that we use, however, is made of a light framework of $\frac{7}{8}$ -square strips covered with cheese-cloth. This material is not only cheaper but better than mosquito-netting or even wire cloth. If it becomes torn it can be very cheaply replaced. But why is cheese-cloth better than mosquito-netting? Mainly because it cuts off from the robber bees hovering on the outside all view of the operations inside. This, we have dis-

covered of late years, is very important; for when the bees can see the combs exposed they are much more inclined to hover around the cage than when the vision is cut off by cheese-cloth.

The tops of our cages have no cover of any sort, and hence no bee-escape is needed. The average beekeeper would suppose that a top would be indispensable to keep out the robbers; but as a matter of fact they will not dive down; and if they hover around at all it will be about two feet from the ground, or about the level of the top of the hive. The bees that fly up when the hive is being operated, readily escape; but no outside bees will dive down into the inclosure where the operator is quietly at work free from molestation. The cages that we use are 5 feet high, 3 feet 6 inches wide, and 4 feet long. Two feet from the bottom are two side rails, $\frac{7}{8}$ square, which serve as handles to enable the operator to lift the cage off the ground, walk over to another hive, and "squat" over it.

We have never tried an arrangement like the one here shown; but we would consider it more difficult to adjust over the top of a hive than one of a slightly larger size and lighter construction—one that could be set over the entire hive and still leave room for the operator. One objection to the Leonard cage is that it would fit only one style of hive. Where double and single walled hives are used, as in our apiary, especially if some of them were eight frame and some ten, it would not be practicable. Then it occurs to us that the curtain work at the back of the operator would have to fit closely around the ground and close to the hive to prevent robbers from getting in. The cage that we have described rests on the ground, and the grass makes it practically impossible for robbers to get under. As a matter of fact, they are not much inclined to crawl through obstructions.—Ed.]

There has just come from the press a new bee book entitled "The Tunisian Beekeeper," by J. Georges, Chevalier du Merite Agricole, an officer of the Nicham Iftihar, President of the Apicultural Society of Tunis, and teacher at that place. The price of the book is 60 cts.; by mail, 65 cts.; 12 copies for \$5.62. Send remittances to Mr. J. Georges, 150 rue Bab Souika, Tunis, Africa.

Heads of Grain from Different Fields

Laying Workers and How to Treat Them

One year ago in June I purchased a two-frame nucleus. This spring I clipped the queen. About the 10th of June they swarmed, but we did not see them till they were going back in the hive, nor did we see the queen on the ground. The next day I found the queen at the entrance dead. I do not know whether she did not get back, or they killed her and carried her out.

Ten days after a large swarm came out and clustered I set a new hive near them with full sheets of foundation, and they rushed in. I then set the old hive aside and put the new swarm in their place.

Ten days after I looked at them they had drawn out all the comb and stored considerable honey on the outside of the frames. I have not found any brood in either hive since they swarmed.

About the 20th of June I bought two queens—one for each hive. The bees were about 30 hours in eating out and releasing the queens. They killed them both at once. There is but very little brood in the old hive. By the appearance there are several eggs laid in one cell—each looks very large, acts like a laying worker. Is there any thing I can do to save the bees? Must I let them die, and start over again?

F. B. FENNER.

Vineyard Haven, Mass., July 13.

[From the facts given in your letter it seems apparent that the queen of the hive was lost when the swarm came out the first time. Either her wings were defective so she could not fly, or she was clipped. In either case she failed to get back into the hive. But if that be the case it is a little strange that they should not have had a number of swarming cells in the hive. One of these should have supplied a virgin queen, and you should have had a laying queen in the colony. If a virgin hatched from a cell she failed to mate, or was probably lost on one of her mating trips. This would leave the hive queenless. A queenless colony will develop laying workers in a course of two or three weeks. Therefore a laying-worker colony will not accept a laying queen. At least we can set that down as a general rule that has exceptions. When you attempted to introduce the queen that you bought, the laying-worker colony probably killed her, and left it in as hopeless a condition as before. The fact that you find more than one egg in a cell is pretty conclusive proof that there must be laying workers in the hive. They are very hard to get rid of, especially for a beginner. You might try giving them a ripe queen cell from some other colony if you can secure one. Sometimes a vigorous young virgin, after she hatches, will be accepted; and if she is she will clean out the laying workers, or at least the bees do so.

Very often, and we think we may say generally, the giving of a cell is only a little better than the giving of a laying queen. If you have other bees, scatter the brood and bees in other hives and break up the colony altogether—that is, providing the giving of a cell does not work.—Ed.]

What is the Advantage of a Large Smoker?

I once thought a larger smoker would probably give me better service, first, because it would give me more smoke; and, second, longer service with one filling. After using a Jumbo I find that it *does* give more smoke, but altogether too much—more than half of it is wasted. During all the time I used the smaller smoker, I never saw the time when I did not have all the smoke I needed. What is the object of sending out a great volume of smoke when a small stream will answer all the purpose? And if a larger smoker produces more smoke, it also uses more fuel; and if it uses more fuel it burns out faster, and, consequently, will not last any longer with one filling than a smaller one.

Since I use the larger smoker I use twice the fuel I did with the smaller one. To be sure, the amount of fuel used is practically valueless. But we are not all so fortunately situated that we can any time step into a machine-shop and help ourselves to all the greasy waste we need. Some of us backwoods fellows have to depend on something else. I am surrounded by old apple-orchards, and have to resort to rotten apple-tree wood for my smoker material. This, too, has no intrinsic value; but, after all, dur-

ing the past twenty or thirty years I have spent quite a little time in gathering and preparing my fuel; and if I have to spend twice that time on account of a larger smoker, the latter would be an actual damage to me or to anybody who uses it.

La Salle, N. Y., June 15.

G. C. GREINER.

[A small smoker will give nearly as much smoke as a large one, or it will give as much as any one would ordinarily need in going over his hives. The chief merit of a large smoker rests in the fact that it will take a larger amount of fuel, and will, therefore, run longer without refilling than a small smoker. Where one burns comparatively large chunks of firewood, rotten wood, or any kind of bulky fuel, the large smoker with a big barrel is much more suitable than the small one. As a rule, extensive beekeepers use the large sizes, and the smaller ones the smaller ones.—Ed.]

A Bunch of Questions

1. Can I use $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ sections in the same super where I have used $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$?

2. How can I get the queen out of the super? Can I use a bee-escape?

3. How can I stop a bad case of robbing?

4. Which is the best cover—the single-thickness board cover or the metal cover with inner cover?

Fosston, Minn., June 26.

SUBSCRIBER.

[1. The $1\frac{1}{2}$ -inch beeyaw sections require different fixtures, such as section-holders, separators, etc., than the $1\frac{1}{2}$ -inch plain sections; but if you have the fixtures to go with them you will not have much trouble in altering the super so as to take them.

2. About the best way to get a queen out of a comb-honey super would be to take the sections out one by one until you find her and carefully lift her off, and put her on one of the combs below. If you simply put a bee-escape between the super and brood-chamber, it would not work very well; for if there is any brood in the super the bees probably would not go down below and desert it, nor would the queen be likely to go below through the escape. Very few queens give much trouble by going up into the comb-honey super; and rather than use queen-excluders for a queen that is inclined to do so it would be better in the end, probably, to require.

3. There are a good many ways of stopping robbing; but one way where robbing has not progressed very far is to throw a bunch of wet grass over the entrance of the robbed colony. Another way is to exchange places between the robbed and the robbing colony. Still another and the best way is to carry the colony being robbed to a cellar for a day or two, then carry it back after contracting its entrance.

4. We regard the metal-covered telescoping cover with super cover underneath as about the best cover, all things considered.—Ed.]

Large Reported Honey-yields

Some time ago I wrote you, stating I thought 500 or 600 lbs. of honey per colony too high an estimate. You replied you would not let any such statement be published, as that would be impossible; yet on page 297, May 15, Mr. Chadwick tells of an entire county averaging 700 lbs. per colony. Why did he not say a thousand, and make it sound more like it? A man in this locality obtained 500 lbs. from one colony, and people wondered how it was done. Come to find out, he put all his swarms in a dry-goods-box, hence results. Now, you might have fifty swarms in a box car and have them fill it, and then write it up for GLEANINGS and have something worth while. It takes a large piece of fat pork to make me swallow these tales.

WALTER C. BENNETT.

Frankfort, N. Y., June 17.

[Well, friend Bennett, it looks as if you had us where the hair is short. We shall have to back down and acknowledge that perhaps you have the laugh on us. On p. 486, Aug. 1, you will see where Mr. Chadwick explains the figures of large yields. We may say incidentally that California bees and California climate, with the right kind of management, and good seasons, will sometimes do wonders. We might say the same thing of New York State. However, it is our general policy to

fight shy of statements of large yields—not because they are not true, but because they are so much above the general average, one year with another, that the general public is a little inclined to be like you—they want “a large piece of fat pork” in order to enable them to swallow such tales. Come again, Bro. Bennett, or anybody else who finds that GLEANINGS is inconsistent with itself.—Ed.]

Introducing Cell at the Entrance

I have great pleasure in reporting an idea (result of an accident) which sounds the death knell to queen-cell protectors. My nephew, R. J. T. M. Muckle, a most enthusiastic beekeeper, going to introduce a queen-cell, found nature had endowed him with only two hands; and as he was using a smoker, and had to remove cover, etc., he found them inadequate, so he laid a cell on the entrance-board while doing necessary work. He noticed that there was a scramble of bees at once over the cell, so hurried to the place where intended. Next day he found the cell firmly fastened in place, and all right. As he had had several cells torn before, he advised me to try the plan.

Now, I had a colony that would not accept a cell, even digging under a wire cage imbedded in the comb to destroy, so I followed the youngster's plan of leaving it at the entrance for not over two minutes. When putting a drop of honey on the point of the cell I placed it, and all was well. I have done several others, and with the same results.

A grand season is 1912, as was 1911; but there has been no failure since I came to Manitoba in 1870. ROBT. J. T. MUCKLE.

Clandeboye, Man., July 15.

[The idea of putting a queen cell in at the entrance of the hive has been before mentioned in these columns; but we can not recommend it, as such a cell is very easily chilled; and the baby queen inside of the cell, if it comes too cold from exposure, will be seriously injured. She may be able to hatch out, become mated, and lay eggs; but as a general thing such queens are short-lived. Perhaps in extremely warm weather the occupant of the cell would receive no injury.]

We may say in a general way that, in most cases, the queen cell may be inserted right inside of a queenless hive, without protector of any sort, and the bees will not tear it down; but because there is danger of their doing so, we advise putting cells inside the protector. The protector not only prevents the bees from gnawing holes in the cell, but it prevents it from being crushed in handling. When a queen cell is in a protector it can be pushed into the comb and not injured. For that reason, when we give cells we advise the use of protectors.—Ed.]

The More Comb in Bulk Comb Honey, the Better

I have just read Louis H. Scholl's communication, June 15, on bulk comb honey. I have a good demand here in Chattanooga for the bulk comb honey in different-sized packages in glass jars, pints, quarts, half-gallon, and in tin pails, friction tops, 10, 20, and 60 lb. tin cans, and I find in a great majority of cases the more comb the better the customers are suited. I get the comb honey cut from frames packed in ten-gallon kegs and fifty-gallon barrels shipped me from Mississippi, which comes in good condition when packed close with comb and filled in with extracted honey. I have received a few packages which were not properly packed, and arrived in bad condition.

As stated, comb honey is lighter than extracted. The most of my patrons are very particular to have full weight exclusive of containers. My principal trade is in supplying the retail grocery trade, and they are not inclined to pay for the cans weighed as honey. I am just like them. When I buy a barrel of honey I want the weight of the barrel taken off every time; but they have a custom in the South of selling 13 lbs. for a gallon, and nothing off for the barrel.

Chattanooga, Tenn., June 24. G. E. LEAVITT.

To Tell which Hive Cast the Swarm

My way to tell which hive the swarm comes from is this: I hive the swarm as usual except about a cupful of bees, and take it to the further side of the apiary, or cover it up with a cloth so the bees left can not find it. Now, if these bees do not take wing

readily I smoke them. Then I look over the hive entrances, and, seeing one with bees standing with buzzing wings and abdomens sticking up instead of down, as ventilator bees do, I know that *that* is the hive. I have located about fifteen such swarms this season, and several last year, in an apiary of 120 colonies, often finding their hive in five minutes.

I have caught a good many stray swarms by putting out decoy hives.

When I was attending public school I put a hive under my buggy-seat and took it to school every day. (I did not know then that I could carry a swarm home in an old sack.) Well, a swarm took possession of this hive one day, and I took it home without taking it from the buggy!

Lakeside, Cal., June 3. G. E. PHILBROOK.

The Tupelo Tree as a Honey-plant

A subscriber sends us the clipping below, which he says was taken from the *Florida Grower*:

I want to find a good location for an apiary where the tupelo tree grows plentifully; also want it where there are some large orange-groves near by. Some of your subscribers may know of such a location.

Stuart, Florida.

E. S.

[Note.—Perhaps some subscriber can answer this question. We have never heard of the tupelo tree before; and in a list of over 300 Florida trees this name does not appear.]

There are some very successful apiaries in Manatee Co., and along the west-coast keys.—Ed.]

[The above illustrates how poorly some editors are equipped for giving information. On pages 596 and 597, Oct. 1, 1911, J. J. Wilder describes and illustrates the tupelo; and it is also illustrated in the last paragraph on page 374, June 15, this year. I have just interviewed Mr. Marchant, our apiarist, and he says that in Northern Florida, where his father is located, they have taken out as much as 100 tons of tupelo honey, and the tupelo tree is thickly scattered over a region of 100 square miles in Northern Florida. If I am correct, there is but little or no tupelo in Manatee Co.—A. I. R.]

Why Winter Bees at the North?

I agree with some of the imaginings put forward by your anonymous writer on p. 307, May 15, for I was arguing similar ideas with my brother the day before receiving our copy. I can sympathize with his wish to remain anonymous, for I found that unorthodox suggestions are not always gratefully received. I protested there was need for imagination in beekeeping as well as in science. I suggested what I termed a more free treatment of bees, somewhat as follows:

Our grandparents set 13 eggs under a hen, brooded the chicks under the hen, and seldom transferred them far from home. Now we send eggs miles away, incubate them by hundreds, rear in brooders, and have a big trade in day-old chicks. Bees are conservative things (they reject new queens, they resist uniting, and they refuse to be changed in position); yet is it not possible to adopt a similarly free treatment of bees?

When, suppose, the only honey-flow of a district is an early one, or early because of being in the South, why not, when it is over, catch most of the flying bees which then become consumers, and a nuisance in the apiary (I used to suggest destroying them), and sell them to be hived on foundation in a district where there is a later flow? They might be fed on sugar for about three weeks before the flow commenced. One can imagine bees being transferred once or twice during the year, and some of the keepers keeping them for only about two months of the year, while others keep them all the year round and rear them in large quantities to supply those who don't.

Why so much cellar wintering? Why not buy bees by the pound from the South, where they may be reared in large quantities? Why not the price of bees by the pound be given in the daily paper like that of other commodities? One can imagine a big yearly trade or seasonal migration of bees, with local importers and exporters. Why shouldn't they be transferred from south to north, and from one honey-flow to another? Why shouldn't a beekeeper, if the honey-flow of his district is of short duration, whether early or late, if he does not want to keep bees all the year round, double or treble such re-

cently hived stocks under one queen as soon as the flow commences, so as to liberate a big gathering force, and so as, when the flow ceases, he will have comparatively little brood, and few bees to sell or destroy? Then extract from all the frames, making no distinction between brood and super, and melt the wax and put away the hives for another year. Some would never need supers, and yet produce large quantities of honey and wax. Whether one dequeened and doubled, or continued to produce bees to the end of the flow, would depend upon the market price of honey as compared with that of bees. Thus we might revert somewhat to skep methods, combined with the movable frame and tiering crate. Foul brood would be unable to exist.

Beverly, Eng., June 20.

T. T. TAYLOR.

[See Editorial.—Ed.]

Worker Bees of Normal Size Reared in Drone-cells

Some time ago there was some discussion about large bees. Some one wanted to renew the combs each year, and some one said use drone-comb foundation and the bees would all be large ones. I did not use drone foundation, nor did I intend to experiment along the line of raising big bees. It happened that I used inch starters in some frames last fall for bulk comb honey. The bees made drone comb of them all, 9, and did not finish them nice enough for comb honey, so I let them stay on the hive all winter.

This spring, while working with the bees, I found a whole body of 9 combs full of drone brood, as might be expected. A few days later, I was looking for queen-cells, when I accidentally uncapped one of those drones; and to my surprise a worker bee walked out. That put me to looking and thinking, so I uncapped some more of them, and they were all worker bees, and, to my eyes, they were no larger than those raised in common worker cells. I used some of this brood with brood from other hives to make some nuclei, and do not see any difference in the bees. The little workers looked lonesome in those big cells.

Lane City, Texas, May 11.

W. H. MOSES.

[Numerous cases like this have been reported in times past. We may safely say that enlarging the cells in order to rear larger bees is an old exploded theory; and yet every now and then some beekeeper gets it into his head that he is going to be able to rear larger bees, and he wants the foundation man to furnish him cells slightly larger than the worker. It has been proven that old combs do not produce smaller bees than new ones. See what our correspondent, Mr. Gardiner, has to say.—Ed.]

Do Young Bees Take up All the Room in the Cells?

Just a comment on Dr. Miller's Straws, p. 262, May 1. If a man faced the south you would have no difficulty in telling which was his right side. Why is a hive different? Those who claim that old combs make small bees must think that the cell fits the bee like tight. As a matter of fact, does any young bee in a cell ever entirely fill it?

Geary, Okla., May 27.

N. FRED GARDINER.

[You are entirely right, friend Gardiner. Any one who has old combs, even though they may be thirty or forty years old, would do well to keep them, if they are free from disease, are perfect, and providing he is not running for choice extracted honey of light color. Many beekeepers believe (and there is some ground for their belief) that old combs have a tendency to darken extracted honey.

But the internal diameter of old combs is never reduced beyond a certain point; for when the cells are a little too small, the bees will remove the excess of cocoons, says Mr. Cheshire, so that the baby bee will have room in which to grow to normal size.—Ed.]

Disease Instead of Poisoned Brood

In the spring of 1910 a large apple orchard in this neighborhood was sprayed, and at that time part of the trees were in blossom. There were two farmers who had adjoining property, and each had about a dozen colonies. A few days later they complained of their bees being killed by the spray. A while later I chanced to be at the house of one, and examined some of the hives. They were filthy with foul brood, and not a cell of honey in either, so this was not a case of poisoning from spraying.

Now, I am not saying that they can't be killed by spraying, but that a great many thought to be killed in this way are starved to death or else die of disease.

We now have a law against spraying during time of bloom. The penalty for violation of this law is a fine of \$50.00. I think this is a good law, and all fruit-growing States should have a similar one, as it has been proven that it is better not to spray while the trees are in blossom—just before or afterward.

Some of the best fruit in the State is grown at South Haven. The Scalacide cup for the best three bushels of apples was captured for two successive years by South Haven orchardists. I am an apple-raiser, and keep bees to pollinize the fruit blossoms as well as for the honey and the pleasure derived from keeping bees. ROBERT MCLEAN.

South Haven, Mich., June 10.

[There can be no question but that there are some cases like this, where disease and not the spraying liquids is the cause of the dead brood; but we are equally certain that there are other cases where brood is killed because fruit trees are sprayed while in bloom. A remarkable instance of this was in Mesilla Park, N. M., two years ago. Both the brood and the bees died while the spraying was going on; and when it ceased, the loss of both stopped. It may be that some make their spraying liquids too strong; but in view of the fact that there is no advantage in spraying while in bloom, from the standpoint of the fruit grower, there ought to be a law in every State against such spraying, to protect not only the beekeeper but the fruit grower himself from his own folly if he does not know any better.—Ed.]

Three Carloads of Diseased Bees Brought into a Healthy Location

In Butte Co. a man moved in about three carloads of bees from Nevada, and a number of progressive beekeepers found his bees terribly diseased with European foul brood. As this county has been free from foul brood it is time that every county have a good foul-brood inspector. We tried very hard to get one for this county; but the supervisors will not help the beekeeper. They claim it is not important. I hope the United States will enact a law that will compel all States to see that they have an inspector, with deputies in all counties.

I heard that this man has gone into another locality that has no county inspector, just to avoid losing his bees by an inspection. It is time to demand certificates of inspection that are dated not longer than five to ten days prior to entrance to each State or county, and on arrival be inspected again if free from disease. The party should be entitled to a right to enter a desired location.

I sincerely hope to see that a safety valve is put on this industry, as we should be guarded against evils like European foul brood. It will do a great harm to California, now being in the North, by this introduction of bees of Nevada. I hate to think of this, as it places fruit men in a bad place too. I am in favor of stopping this migratory beekeeping if disease is going to be brought in to healthy places.

Chico, Cal., June 2.

S. J. MORRISON.

Queens do Not Use Wings to Balance Themselves when Laying

A. C. Miller, p. 755, says regarding the clipping of queens, "When a queen backs into a cell to lay, her wings slide out over the surface of the comb to balance her. As she starts out the wings materially assist her." This seemed conclusive until I watched a queen lay. Of ten unclipped queens that I have seen laying within the last 48 hours, only one touched the surface of the comb with her wings. She was a very small queen. I do not think she used any pressure of her wings to balance her—at least there was no noticeable flexure of the wings. In three cases the wings did not come within $\frac{1}{4}$ of an inch of the comb; in the other six, not within $\frac{1}{4}$ inch. Several times worker bees came up behind under the wings while the queen was laying, and seemed to look down past her body into the cell, but her wings did not touch the worker bees. All these eggs were laid in worker cells. There was no indication of a balancing action by means of the wings, nor any motion of them. It would have been absolutely impossible for either of the nine large queens

to touch the comb with their wings. I take it that Mr. Miller refers to action of the wings on the comb on which the queen is resting, not the one behind her. It is likely that stunted queens laying in worker cells, or perhaps other queens laying in drone cells may touch the comb with their wings. Neither of these cases seems to have any practical interest.

HARRISON H. BROWN.

La Plata, N. M., May 17.

Ignorance of the Market Value of Honey Lowers the Selling Price

Many beekeepers in this locality do not read a bee paper. A great deal of the honey they bring in indicates this. If they would read some bee journal they would not only be able to produce a better grade of honey but also realize the market valuation of it. As it is, they put it up poorly and sell it on the market for what they can get, as it can not stand shipment. Honey, this season, was selling at 15, 18, and 20 cents per section, according to grade. One farmer brought in 1000 lbs. of this poorly put-up honey, and a storekeeper bought it at 11 cents per lb. and sold it at 15, actual weight. This, of course, made a crash in the price in a place like this. I see no reason why a pound of good clean comb honey should not be equal to a pound of cheese which sells at twenty cents.

O. J. GOODMANSEN.

Little Falls, Minn., Dec. 9.

Coal Oil to Stop Robbing

I want to tell of an experiment I tried to stop robbing. I made two nuclei of four frames each, and set them on new stands near the main yard, with an entrance of about 4x½. The bees were all young, and robbing set in. The robbers were in droves.

I quickly grabbed a handful of wet grass and put it in front of the entrance which I had contracted in the meantime; then I took a paint-brush and a can of coal oil and spread the oil the width of the brush, all around the hive. The robbers came out of the hive loaded, and went back to their colonies; but when they came back they smelled the oil in front of the hive, and then, going around the sides, found it there also. In three hours there was not a robber around these hives, and robbing has stopped throughout the apiary.

Manchester, Tenn.

W. T. SALE.

Will Chickens Eat Bees?

I would thank you very much to let me know whether chickens will eat bees. I asked several people this question, and some said yes and some no. We have chickens and a garden, and I have heard that bees should not be put close to any thing growing such as grass, etc., so the only place left for me to put them would be in the chicken-yard.

Richmond, Va., July 22. DOUGLAS M. STITH.

[As a rule chickens pay no attention to bees. A few cases, and only a few, have been reported where they do so, and even then we suspect they eat fresh dead bees, live drones, and young brood when it is thrown out. If they once acquire a taste for live drones they may eat live worker bees. If any one has positive evidence that they do, let him report.—Ed.]

Flags to Show Virgins which Hives they Came From

After reading William A. Sedding's article on tacking up playing cards above the entrances for sign-boards, I wish to mention a plan I have adopted which has proved very satisfactory. All colonies in Imperial Valley are placed under shades called ramadas, made of brush covering about 12 feet in width, and in length to accommodate from 50 to 200 colonies. The hives are placed at the sides with entrances facing out, in straight rows. Naturally, the hives being uniform, and being placed evenly in rows, a great number of virgins are lost unless some distinguishing sign or mark is made.

I take a lath and fasten it lengthwise on the cover with a projection of from twelve to eighteen inches over the front of the hive. On the end of this I fasten a piece of cloth, forming a flag. The virgin locates her hive by this flag, and hardly any are lost.

El Centro, Cal., June 24.

A. F. WAGNER.

To Get Combs Built to the Bottom-bars

I have found that the half-inch bottom-bars mentioned by Fritz Bohne, p. 339, June 1, do not always result in having the combs built clear down to them. I am going a step further and putting a line of melted wax in the middle of these bottom-bars; and from preliminary tests I believe it is going to be a success. The half-inch bottom-bars are a good thing.

I believe in feeding the bees of a newly hived swarm until they get the combs drawn out, and then they will do wonders if a good flow follows from the fields soon.

Jonesboro, Ind.

C. A. NEAL.

Is the Breeding of a Yellow-to-tip Bee an Impossibility?

I wish to take issue with the editor on page 393, July 1. If by breeding and selection we have obtained a bee that shows five bands yellow from the original stock of three bands, is it asking too much to expect to eliminate the last dark band?

Again, the editor says: "Yellow-to-tip bees or five-banded bees according to my light, is only the six-banded yellow bee that will be yellow to the tip." Does "to the tip" mean all but the last segment, or does it mean literally yellow to the extreme end of the bee?

Such a bee is yet to be produced, according to my knowledge; yet I deem it no impossibility.

Swarthmore, Pa.

P. G. SNYDER.

[As you say, a yellow-to-tip bee is yet to be produced. We have never seen any workers of that sort. We believe that they can be produced; but so long as it seems to be very difficult to raise queens that will produce all or 75 per cent five-banded bees, the prospect for producing six-banded or yellow-to-tip bees is not very reassuring. By "yellow-to-tip" we mean yellow all over the abdomen.—Ed.]

Where Did the Eggs in the Queen-cells Come from?

The other day when working with my bees I noticed that one colony had no young bees nor queens, but I found eggs in five queen-cells. I can not understand where the eggs came from when there were no other eggs in the comb. I watched closely, and found that the eggs never hatched. There was no evidence of laying workers, no drone brood, nor any thing of the kind. I gave the bees of this colony some eggs from another colony, and they reared a fine queen.

Yeager, Ky.

JOHN A. DAMRON.

[This looks as though those eggs had been stolen by the bees from another colony in an effort to rear a queen. There have been many instances of this kind, even in our own apiaries, and it seems hard to explain the presence of the eggs in any other way.—Ed.]

How Long Does it Take to Find and Clip 100 Queens?

How long does it take an apiarist to clip queens in an outyard of 100 colonies if it is done at the proper season? I am supposing that his time is fully occupied, and that he must work at it when he decides to go to the yard.

Galena, Kan., July 11.

J. P. BRUMFIELD.

[It depends considerably on the skill of the operator, and also upon what might be termed mere luck. The color of the bees has quite a bearing on the matter also. Small queens are hard to find, especially if they are dark. Even under quite favorable circumstances we doubt whether 100 queens could be found and clipped in much less than ten hours.—Ed.]

Good Year in Spite of Heavy Losses

I am getting more honey this year than I ever did before. I started with 20 stands in the spring, some of which were very weak, and I have had nine swarms. We had an immense locust bloom; then the berries and white clover came on, and the bees filled their supers faster than I could get them ready. The white clover is better, and there is more of it this year than for a long time. I have taken off 400 lbs. of honey, and will likely get 200 lbs. more, for all of which I get 16 cts. per lb.

Cheat Haven, Pa., July 18.

FRANK BAKER.

Our Homes

A. I. ROOT

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16:7.

If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you.—JOHN 15:7.

And it shall come to pass, that before they call I will answer; and while they are yet speaking I will hear.—ISAIAH 65:24.

The year 1879 was an eventful one in my life. Obstacles came up in the way of my plans for developing bee culture; but the wonderful answers to prayer came thick and fast in enabling me in a striking way to surmount these obstacles. I will go over some of the events briefly.

In putting up the first brick building on the grounds we now occupy I became for a brief time somewhat financially embarrassed. The good friends here in Medina, and even my own relatives, were troubled about my getting the boys out of jail to work for me, and in expecting that God would answer my prayers for financial help, etc. All at once the way seemed blocked, as it were. None of my good friends were willing to advance me money any longer, and the man who furnished the brick for the first building declared he would have to have his money, and finally he said if it was not ready on a certain day he would make me trouble. Just then the little hymn from Moody and Sankey's collection, "Take it to the Lord in prayer," was very popular. It was my habit, in kneeling down with my wife at night, to tell the dear Lord of my difficulties, and ask him not only to direct me, but to furnish the means for doing his work. The man who furnished the brick said he would have to have his money on a certain day and at a certain hour. Almost immediately after this prayer a stranger, George O. Goodhue, of Quebec, Canada, visited our place, and volunteered, without my mentioning the matter, to furnish the money I needed. My friends laughed at me again for having faith that an utter stranger should send me money without security. On the day in question our mail came in about an hour before the time I had promised the money. I told the girl who was opening the mail that I was expecting a letter from Quebec. In a few minutes she sailed a letter over to my desk, saying, "There is your Quebec letter, Mr. Root." When opened I found it to contain a check reading, "Pay to A. I. Root \$500 in gold, and charge to the account of George O. Goodhue."

The brickman came in very soon after I had the check in my fingers, and was greatly surprised to find I had the money for

him. This whole event is fully recorded in the Home papers for 1879, with many similar ones. At that date I was manufacturing a fifty-cent smoker, and I made a reckless offer (as most people thought it) of giving one of these smokers to any beekeeper who would abandon the use of tobacco. The tobacco pledge was put in print in our "young" bee journal. First and last, more than *one thousand people* gave me the pledge and received a smoker; but at almost the same time that the man came from Quebec our good friend Bingham came down from Michigan, and informed me that my smoker infringed on his patent, just then taken out. After talking it over it seemed a question as to whether his patent would hold legally; but rather than to go into litigation (for that would disturb my spirituality more than any thing else) I gave way and made a promise not to make any more smokers. In fact, at that time I decided I would not go into *any thing* whatever unless I could honestly ask God to bless the undertaking. I told friend Bingham, after we had talked the matter all over very thoroughly, that I would stop making my cheap Simplicity smoker. I believe father Quinby had the credit of making the first bee-smoker to be blown by a bellows instead of using a tin tube blown by the mouth. Bingham's invention, however, was, without question, an improvement on the first rude smoker. When I told Mrs. Root my decision, she thought, as did some others of my friends, that my conclusion was hasty and even reckless. Let me quote my very words to her, from GLEANINGS for January, 1879: "If God has really directed me, in giving this up, he will certainly guide me in giving beekeepers something just as good if not better in place of it." I went to bed and slept soundly, although I did not know how in the world I should get smokers to sell at the low price of 50 cents, and a large part of them to be given away. Next morning, when I got down to my new office in the brick factory, a queer-shaped package from away off in California lay on my desk, and with it the following letter:

ALL ABOUT BEE-SMOKERS.

Having examined all the bee-smokers of the present day, as well as many of more ancient origin, and experimented not only with those of other makers, but also with several of my own make, I arrived at last to the following conclusions and objections:

All smokers made on the principle of blowing a blast of air through the chamber containing the fuel are defective for this reason: The fuel is made to burn up rapidly; and, worst of all, the smoke is hot; and who has not noticed how hot smoke irritates bees instead of quieting them?

The Novice smoker, on the score of simplicity, was far ahead of any I had seen; but its simplicity in one feature (having no valve) was an element of weakness; as in supplying itself with air from a point so near the fuel it inhaled smoke, which caused an accumulation of soot in the bellows; and during a long honey season of from 60 to 90 days, in large apiaries, it became disabled. The leather became black and hard, and it failed.

Having tried modifications of nearly all the principles claimed in other smokers with poor success, I set myself to work to remedy what I considered the defects of your smoker. 1. I put in my simplicity valve; 2. Instead of blowing my fuel when it was already burning fast enough, I concluded to blow my blast up through the fuel in a solid tube, ending far enough up in the spout (which I had added to the top of your fuel-case) to create a vacuum, and cause the smoke to rush in to fill this vacuum, and in so doing to mix itself with the blast of cool air, thus giving me a *cold smoker*. I then arranged a damper so as to regulate the draft to suit my fuel, and *Corey's cold smoker* was completed.

We have made a very thorough test of this little modification of your smoker, and found it satisfactory; and every beekeeper who has seen it and tried it says Bingham's is "nowhere." This vacuum principle is not any part of Bingham's *blow-hard, hot-blast, direct-draft* principle, and you are at liberty to use my improvements to your heart's content, without cost. I will mail you one as a sample, so that you can readily get the principle; and if it can be cheapened in any way, and not lose any of its merits, you can modify it. JOHN G. COREY.

Santa Paula, California, Jan. 12, 1879.
P. S.—If this gets you out of the smoker difficulty, I shall be fully rewarded. This offered relief comes further than the \$500 check did.

One day later.—In my hurry to send you a smoker I was compelled to use borrowed tools, use a piece of an old packing box for the boards, and put in a poor squeaking spring; and then after boring my outlet hole wrong, and various other mistakes and blunders, I finally got it ready to send off. Rough as it is, it will be a guide to you only as an application of the vacuum principle as applied to smokers.

I nailed it up without glue, so that you could easily pull it apart to see the valves.

Calf skin is best for the valves; $\frac{1}{2}$ -in. clout nails for fastening and clenching the spout on.

I use rags. Make a roll $1\frac{1}{2}$ in. in diameter, and about 8 or 10 in. long, and coil it around the pipe, so that the ends will not meet, thus, when it will burn only on one end and burn slowly.  JOHN G. COREY.

You will notice that friend Corey refers to the \$500 in gold that came from Quebec. The smoker that got me out of trouble came from still further away. Perhaps I might mention right here, that, a little later on, Mr. Norman Clark, of Sterling, Ill., sent me a sample of what was called Clark's cold-blast smoker,* which is the one our peo-

* Below I also give friend Clark's letter that came with the smoker.

I received my Jan. GLEANINGS promptly on time, and at once set myself down to read. Somehow I get to "Our Homes" very soon, and before one quarter of the book is read. When I read your talk with Bingham, and your decision about the smoker, I thought there might be some other plan of one that would answer as well; very soon a plan came to me, and I worked it out in its details.

Now, I have your Feb. number of GLEANINGS, and, lo and behold! you have the same principle embodied in one from a friend in California; but I have decided to send you the one I have made, and perhaps there may be some features about it that you may like even better than Corey's.

It works beautifully; the draft of air across the top of the fuel causes it to burn clear and slowly, and leaves very little cressote. I find that rags burn, but perhaps $\frac{1}{4}$ as fast as where the air is forced up through the bottom. Its convenience as a "breach loader" is an item in its favor, also that

ple at the present time now furnish at the low price of 55 cents. The first year after this cold-blast smoker was put on the market 20,000 of them were sold to the beekeepers of our land. I wonder if it has occurred to any of you that the cold-blast smoker was on the way from California before that little prayer, "Lord, help," was uttered in regard to the smoker question. Many people have said to me, "Why, Mr. Root, you are short-sighted, for the smoker was on the way, and it would have reached you just the same if you had not prayed at all." And right here just now comes in so beautifully that promise in the last text I have chosen—"Before they will call I will answer; and while they yet speak I will hear." Does it trouble you, my good friends, to grasp the great truth that the great Father above, who is the "alpha and omega," can put in motion the machinery necessary to answer our prayers (offered by his children), even before the prayer has been made?

The two incidents I have mentioned are only a few of the many that occurred in the year 1879. What has called the matter up just now is that our friend J. G. Corey is still living, and his picture will be found on another page of this issue.

Let me remark right here, that, away back in the early days, when Italian bees, or bees of any kind for that matter, were first sent to California, friend Corey was employed by the government to carry the mail where there were no railroads, and hardly any roads of any kind (for that matter) in those localities. He got a small colony at a big price, and made a very light hive for it, for the colony was really only a nucleus, and carried it on his shoulders *more than a hundred miles over the mountains*. Part of the trip could be made only on snowshoes. He got them through alive, and from that single colony alone he started an apiary. He built them up successfully; divided, and for quite a time he sold all he could spare, for *forty or fifty* dollars per colony; and that was the start of the great beekeeping industry in that region. Mr. Harbison, who took a carload of bees to California about that time, sold a great

it retains its position while in use. The Simplicity always seemed to me a little awkward, on account of being obliged to turn it bottom up so often, while in use.

Now, if you can use this to advantage, or modify it to suit you any better, you are welcome to it.

As a counterbalance to friend Sedgwick, I will say that the best part of GLEANINGS, to me, is "Our Homes." Four years ago I would have written as he does, but I see things differently now, and am happy in being able to place myself by your side, as a Christian. May God speed you in your good work, and bless "Our Homes." Your friend,

Sterling, Ill., Feb. 4, 1879. NORMAN CLARK.

part of them for \$100 per colony, and a few were sold at over \$200 each.

It was my pleasure, in 1903, to have a grand visit with both Mr. Harbison and our old friend J. G. Corey. You can imagine friend Corey's delight in not only astonishing the world with the *quantity* of honey he secured, but also with the *quality* of the California water-white sage honey.

In closing up this Home paper I wish to make a brief extract from an article in GLEANINGS, years back in 1879, headed "Troubles." It illustrates the difficulties we then had with the express company.

In May a customer from Texas ordered three \$3.00 queens. To avoid delays and save expense we tried to prepay the charges; but the express company could not tell what it would be over the southern lines, so they would not receive the money in advance. Time passed, and the queens were not received. A tracer was sent, and, after long delays, they were found held at some point in Texas. They were held until the back charges should be paid, yet neither myself nor my customer was notified where they were nor what the trouble was. The cages were made in such a way that the officials could easily see that they were bees, and perishable, and yet they put them up on a shelf, and let them die; and, nearly two months after, we were asked for the back charges, and whether we wanted the dead bees forwarded to destination. I sent back word that they should throw them out of the window, stifling my temper as best I could. They very kindly consented to do this, but sent back for \$1.75 charges for carrying them so far and keeping them until they starved. I felt very much, then, as if it would be inexpressibly delicious and soothing to be permitted the luxury of tearing that Texas man's shanty all down, and giving him such a shaking that he would never think of starving any more innocent bees as long as he remained in the express business. But I put away such thoughts, paid the \$1.75, and prayed God for patience, and that he would help us to soften even the hearts of the express companies. What do you suppose happened? Nothing different from what has happened a great many times in my business troubles and trials. A gentleman came in, a few mornings after, introducing himself as the superintendent of our express line. He said he had noticed the amount of business we had given them, and asked if he could do any thing to aid us. In a twinkling our printer had some neat little labels directing any express agent in the United States to forward the package it was on, without delay, under any circumstances whatever, signed with the superintendent's name. He also made arrangements to carry queens, smokers, etc., over any or all northern lines for one single charge of 25 cts., besides fixing many other things greatly for the comfort and convenience of myself and you.

I want to quote another sentence from that article, further on:

I felt again, that, when men held important positions, and were too proud and lofty to give us notice, God never was, and he would *always* answer.

No wonder such a faith and such a practice built up business. My prayers were not for self, as you may notice—at least not altogether for self, but for the friends scattered all over the world who were anxious to engage in the new industry of bee-keeping.

While on this subject it startles me to note that, during all of these years, the express companies have been allowed to do business, and still do it at least occasionally, in the way the above transaction indicates.

Below is a letter received this present year, as you will notice, from our good friend Corey:

THE COLD-BLAST SMOKER.

Necessity is said to be the mother of invention, which is true in this case, as something had to be done. In the early history of beekeeping in Southern California we were poorly provided with implements, and used our wits to make such as we were in need of, as the problems presented themselves. First of all, smokers were the old saucepan filled with many different kinds of fuel. This was used by nearly all the early beemen, utilizing the wind to waft the smoke where desired. Then came the two-inch tin tube, about a foot long, rags or old gunny sacks being used for fuel, and the breath of the beeman used to carry the smoke where desired. The results of this smoker were imperfect in only one case, where it never failed. Headache always followed blowing.

Then came the announcement of the invention of the Bingham smoker, which was patented in 1878, or thereabouts; but the dealers on this coast never sold goods "for their health," so the price was too high for us. Mr. A. I. Root, then publishing GLEANINGS, brought out a cheap smoker called "Simplicity," that answered our purpose, and it was going into general use. Then suddenly a cloud (no larger than a man's hand) came over the horizon, and threw our cheap smoker into a dense shade. Mr. Bingham notified Mr. Root that his Simplicity smoker infringed on his patent. That made a mess of our favorite smoker, and stopped its manufacture. I looked over the situation, and decided to run the cool-air tube up into the nozzle and create a vacuum, which would cause the smoke from the fuel-box to rush up and be blown out as desired; and that the cool air from the bellows, by not being passed through the fire-box, would furnish a cooler smoke than the Bingham smoker. I sent one of my cold-blast smokers to Mr. Root, and received substantial thanks from him. Now after over thirty years have come and gone, many different patterns of smokers have been invented and manufactured, all of them having advocates. All of them are fairly good, and moderate in price.

Our modes of handling bees, now that we all use a quilt out here, thus avoiding the snap in removing a sealed cover, and by breeding bees of a better disposition, enable us to use very much less smoke than in early days.

Many changes have taken place since then. Four years ago Mrs. Corey died, leaving me to finish up the battle of life alone. My health is fairly good; but my great age admonishes me to be ready at any time. I am 84.

Santa Barbara, Cal., Jan. 3. J. G. COREY.

The above letter reminds me that, in one of friend Corey's letters, he said, after seeing how successfully his smoker worked, he had designed to get it patented; but he finally told his good wife he would rather send it to A. I. Root, and have him improve it, and *give* it to the world at a moderate price, than to go to the fuss and bother of getting out a patent, even if it *should* prove to be of considerable value.

BE NOT WEARY IN WELL DOING.

Mr. A. I. Root:—In reading one of your articles in GLEANINGS for March 15, 1911, it led me to write you to know what you would do with a Bible class in Ohio of 52 ladies in a Congregational Church who had one of the best teachers a class ever had, and who was very anxious to have the class do something to help in God's work, such as rescuing the fallen or helping the Salvation Army in their work, or do something to down the white-slave traffic. They seemed to be so unheeding he became discouraged and resigned from the class. What can be done to stir up such women? I am a member of the class, and would like your advice. I ask God to help, and show me what to do. O. C. M.

My good friend, we can rejoice and thank God for two things that you make known in the above letter. The first is that there is a class of 52 ladies (young ladies, I take it) in the Congregational Sunday-school in your place. Secondly, we can rejoice and thank God that there is at least *one* praying woman in that class, one who is really "hungering and thirsting after righteousness;" and you know what the reward is. Keep on praying, and use every opportunity to plead for Christ Jesus, and show this, that I am dictating, to your good but discouraged teacher. Tell him that I say he should by all means and under all circumstances hold his place at the head of that class, and cease not to work and pray, for the promise at the head of our text is plain and sure. Sooner or later he will have his reward. You do not tell me how many of those 52 are professing Christians; but the fact that they continue to attend, at least in moderate numbers, is sufficient evidence that they are not so far away as you and he may think. Many and many a time during my past Christian life of 40 years or more have I become discouraged and almost ready to give up, when, lo and behold! in some unexpected way my prayers would be answered. Keep on hungering and thirsting after righteousness, you two, and you *shall* "be filled."

FLORIDA LAND SWINDLERS, ETC.; SOME OF
THE DRAWBACKS IN GOING DOWN
TO FLORIDA.

Dear friend Root:—I have been reading GLEANINGS for July 1 while it is raining this afternoon. I am glad to see you standing by your guns in the Florida swindling, for that is what a lot of it is. Next April will be 30 years since I struck Florida sand. I have not got rich, but I am content to end my days here. I have no desire to leave it. I have been from Pensacola to Key West, up and down, and across on foot, by boat, by wagon, by train. It is a big State, some of it as good as the sun shines on, and a lot of it absolutely worthless. The sad thing is to see men well up in years sell their homes and come down here under strange conditions, and blow in every dollar they have on propositions that those of us who know the country could not be induced to put a dollar into. A lot of them are paying for their experience right now; and if they alone suffered it would not be so bad; but women and children have to put up with conditions that are furious. There have been four or five years of exceptionally light rainfall, and it has given these schemers the opportunity of their lives, and they are using it. But I am inclined to think this season is going to put a damper if not a cold bath to a lot of it—over ten inches of rainfall in May, over 16 in June, and I think it has rained every day in July so far, with a prospect of this being kept up till mid September. This will likely give the muck-boomers some questions to answer that will be somewhat difficult. But as long as men are ready to listen to the fairy tales of men who are seeking for their cash, I do not know what you and I can do but refuse to be a party to it. To a man who wants a pleasant climate, and work out of doors, that will make a living or a little more, I know of no place I would rather risk than the right location in Florida; and there are plenty of them, but they are not in the hands of land-boomers. The successes are given,

not the failures. I have followed what you have written, with interest; and I think you have been fair. There are great opportunities in Florida, and there are great opportunities to blow your money in and never be able to find the hole it went into. The tenderfoot wants to go slow. About two years' experience right out in the field and he will begin to know something of Florida sand—its worth and its worthlessness.

Bowling Green, Fla., July 18. IRVING KECK.

I wish to emphasize the point our good friend Keck makes, by saying the good localities are not in the hands of the land-boomers. These "land-boomers," as he calls them, usually hunt up a tract that can be bought for a little money, or a little money compared to its real value. Then they start out with their spread-eagle advertising, and sell off lots or five and ten acre tracts until they get their money back several times over; and then they leave their deluded victim to sell out (if he can) and go back home. Let me give you a little history of a beekeeper here in Ohio who got so wrought up over the talk about Florida that he sold his home, farm, bees, and every thing, and moved down to Bradentown, expecting to make it his permanent home. His first setback (and this, perhaps, had considerable to do with getting him discouraged), was with the railroad company. He went to the agent near his home, and made a contract for a carload of household goods, etc., to be delivered in Bradentown. As he has a little automobile he asked if that could be put in the same car. The agent assured him that it could; but measurement showed that he would have to have a car with a wider door to get the machine in. This agent informed the railroad company, and they sent to Pittsburg and got a car with a wider door. The goods were all loaded in the car. He paid the price, and got a receipt in full for the shipment to Bradentown. Imagine his surprise and disappointment to find that, before the car could be opened, and before he could get his goods, he would have to pay an additional charge of something like \$200! This was the "penalty" affixed somewhere in Jacksonville for putting an automobile in the same car with household goods. Now, the automobile could have been shipped alone for about \$50.00. In fact, I have had two such shipments—one from Medina, O., and the other from Chicago, for only about \$50.00 in each case. The other \$150 or more was a *penalty* imposed on an innocent party—one who paid all the agent asked, and got his receipt in full. He paid some more money to a couple of attorneys for letting him know (?) that he could not well help himself. I took the matter in hand, however, and (with the aid of the *Rural New-Yorker*) I am not yet convinced that there is no redress.

I have thought best to mention the above because several parties coming from the North have been assessed additional charges—not quite so large, however—in several cases, even after they had the receipt in full, paid to destination.

Let us now go back to friend Klein, who came to Florida, I think, some time in November, on account of his health. He improved rapidly, and gained 15 lbs. in flesh, and was highly delighted with the change; but along in February or March the Florida grip or something else got hold

of him, and he became so sick and discouraged that I have just learned he has moved back to Ohio with all his family and possessions. I have not learned, however, whether he shipped his little automobile back or left it there.

Now, had this good brother taken friend Keek's advice, and spent a winter in Florida before going down there with his family and all his possessions, think of what he would have probably saved in money alone, and perhaps unpleasant experiences as well.

Poultry Department

EDUCATING THE LEGHORNS NOT TO FLY; SOMETHING ABOUT INEXPENSIVE FENCES.

Most of us have discovered, sooner or later, that chickens can be educated, like other animals, in the matter of getting over fences or through them; but I suppose only a few of us have ever considered the matter of educating chickens *not* to fly. I have discovered this in our Florida home—that, when they get a fashion of flying over the fences, it is a hard matter to stop them. Clipping one or both wings promptly with the first hen that starts the habit will often wind it up; and after our flock has been away from the yard during the summer they seem to forget about flying over; and although our fences in Florida are only four feet high, last winter we had almost no trouble at all by the hens getting out. Just before we came away a few had learned the trick. Now, here is something from the periodical called *Poultry* that is new to me:

Last spring we built our breeding-pens on a plan new to us. We made them long, and but six feet wide, as the breeding-pens were made up of small numbers, from six to fifteen birds in a pen. The sides of these pens were made of three-foot poultry-netting, and they were covered over the top with six-foot netting. This gave plenty of head room for the fowls, and these enclosed pens were cheaper than those with high fences would have been. We have enough of these pens to furnish room for all the hens we kept over, about 85. During the breeding season they were kept in these pens almost continuously, and they soon learned that they could not fly out of them because of the netting cover. Not being given to reasoning, these hens have come to believe that a fence is insurmountable, no matter how low it is, and do not try to fly over the 26-inch fence. I am led to this conclusion by the fact that two or three times when a hen has wandered into the garden through an open gate she would allow herself to be caught before she would try to fly over the low fence.

We have concluded to keep these hens in this notion of staying behind a fence. Every few days we simply leave them in the pens all day, and we believe we can keep them from learning that a low fence can be got over. If this continues to work we have learned to save time and trouble, for we can build the covered runs at small expense, and orchard fences cost money, and a lot of it, in this country. Any one who will go to the trouble of building low covered runs such as we have used this year can

soon solve the problem of keeping fowls in subjection; and we consider this one of the most money-saving things we ever learned about the habits of fowls.

This covered poultry-yard, as described above, is a splendid arrangement for a hen and chickens where hawks are apt to be troublesome; and a three-inch-mesh netting, which is comparatively cheap, will answer overhead as well as any. Another point comes in right here. A two or three foot fence that would never answer to keep chickens *in* a yard will do excellent service in keeping them *out* of the garden. I have seen a two-foot fence keep Leghorns off the garden all summer—that is, unless some one of them happened to discover how easy it was to get over. Now, this point we have been speaking of applies to turkeys as well as chickens; and the same letter I have quoted from gives us the following:

We might add that our bronze turkeys have never been inside the orchard, although they were hatched and raised around the poultry-yard. In fact, these same turkeys, hatched in the spring of last year, have never been confined in any way—have unlimited territory over which to roam, and yet we have never caught one of them ten rods from the place where they were hatched.

You see the turkeys, had they been confined by a 26-inch fence, would have gotten out without any trouble; but when it was getting *into* the orchard, instead of getting *out* of it, it was a different thing.

Now, here is something more from the same periodical:

BEEF SCRAP FOR LAYING HENS; HOW MUCH AND HOW LITTLE IS NEEDED.

This season we concluded we would try to discover just how little beef scrap we could use and still get the maximum number of eggs. We soon found that we could reduce the quantity of scraps fed to the place where egg-production would fall off in a very noticeable way. Between 5 and 8 per cent beef scraps in the regular feed of hens seems to be about right. If cut below 5 per cent the number of eggs gathered becomes less almost at once. Feeding 10 per cent beef scrap seems to promote growth in young chicks, but hens do not seem to lay better than they do when a little less is fed.

Please consider that if your fowls, or, say, hens and chickens, have a run where

they can scratch and get more or less insects, the animal food may not be needed; but where they are kept in yards, in order to get the best results they must have both green food and meat in some form.

THE CONVERGENT POULTRY-YARD AS DESCRIBED IN OUR JULY 1ST ISSUE.

At the present writing, Aug. 1, I am a little disappointed to find so little notice taken of this new departure, for I am sure it is destined evidently to cut an important figure in farming and in poultry-raising in general. One of our agricultural papers mentions a dairy barn to be made on this principle. The silo stands in the center of the barn, which is circular; the cows with their heads toward the center. The feed is taken from the silo right across the alley to the cows' manger. The manure is gathered by driving around the outside of the barn. Although I am but little conversant with the dairy business, it seems to me this would be a wonderful saving of expense and time. But to get back to the matter of poultry, just think of the convenience of having eight, sixteen, or possibly more yards, for that matter, all running up to a common center. If a broody hen is found, just let her loose in a vacant yard. You can give her a setting of eggs, or break her of sitting, without any delay or running back and forth; or suppose you have a hen with a lot of chicks, no matter whether it is a common brood or sixty or seventy, as I manage, just put her in a vacant yard, where her wants and those of the chickens are all supplied, and they are also perfectly secure from all sorts of poultry enemies. At little additional expense you can also keep off hawks and owls as well as rats and wild animals. When you wish to separate the surplus cockerels, every thing is all fixed for that without any trouble. Any number of choice breeding-pens can be started in a twinkling; and every fowl in your possession has free range, and yet can be made perfectly secure at night without any chasing about.

In my Florida home last winter I had seven yards, besides the ducks. The yard for my cockerels was away off in one corner of my square five-acre lot. The ducks were in another corner, and my best pen of Leghorns in still another corner. This last pen was down near the creek by the boys' swimming-hole, and several times a dog got in among my chickens. They were so far away from the house that they were more meddled with than in the other yard. Now, with the convergent yards all the fowls on the ranch can be close by where

you sleep, so that it is an easy matter to note a disturbance in the night. At the same time, they can each and all radiate during the day all over the five-acre poultry-farm. A similar arrangement can be made for hens and chickens, say on a small scale. Most of you know how much work it is to take care of, say, half a dozen hens with chicks of different ages. Suppose each hen with her brood could come right up to some central point where you have chick feed, grit, oyster-shells, water, and every thing they need. All you have to do is to go into this central inclosure, close by your home if you choose, and every hen with her brood would rush up for the rations—no fighting nor quarreling. To save labor I used to have my chick feed kept in a covered can. The can had to be lugged back and forth from one yard to another, or else I was obliged to have a similar covered can near each hen with her brood. Of course the same arrangement works equally well with a fireless brooder or lamp brooder. You can have a dozen different brooders if you like, and one roof may cover them all, with radiating yards, so that the chicks may have range as fast and as far as they need it. I notice the poultry journals are recommending that each pen of fowls should have two yards, so you can grow green stuff in one yard while the fowls occupy the other. The radiating yards would be the nicest thing in the world for this purpose. Some one may suggest that this all sounds well enough on paper. Well, Providence permitting, in a very few days I expect to have the fun of arranging it on my five acres in Florida; and I am going to try to have something I shall not be ashamed to show visitors when they come around. May be it would pay you during the winter time to take a trip down to that land you have all heard me talk so much about.

MUSTARD TO START HENS LAYING AND TO KEEP THEM LAYING.

Since saying what I did about mustard, from the book entitled "The Corning Egg-farm," and what I copied also from E. L. Keyser, there have been constant inquiries made in regard to how much mustard, how to feed it, and how often to feed it. I presume this will have to be settled largely by trial. I wish our experiment stations would lend a hand. All I know about it is this: I purchased a box of ground mustard at the grocery, and put a heaping teaspoonful into half a pailful of mash made of bran shorts, middlings, Indian meal, etc., stirring it thoroughly so as to have it distributed all through the dry bran. Then this was wet

up with water and given to about 75 hens every day. We also fed to little chicks the same mixture. During the time it was fed we had the most eggs we ever had from a like number of fowls. At the same time we gave them quite a little green mustard—the Florida kind that makes leaves some two feet long. The hens eat this very greedily, and I do not know but the green mustard might take the place of the more expensive ground kind. The Cornings use mustard bran bought at the mustard-factories, costing about a fourth as much as the ground mustard for table use. I presume it would be best for each one to make experiments according to circumstances. We have abundant evidence from different sources showing that the use of mustard, instead of being a detriment to fertility, acts quite the contrary. In fact, some stations have reported that they had a higher degree of fertility with hens fed quite liberally with mustard. We should be glad to hear from poultrymen, besides the Cornings, who have tested the matter on a considerable scale.

A HOPPER FOR WET MASH.

Like yourself I have dropped the bees a little, and changed the hobby to poultry. I keep White Leghorns, White and Buff Orpingtons, and Indian Runner and Buff Orpington ducks. I hatch with a Cypher incubator, and rear in Philo brooders and hovers. Philo hovers are good, but the brooders want to be in an open shed for the assistant's comfort. I know from experience with six this season. I have been puzzled over an efficient hopper for feeding wet mash. I got it at last. Make a tray, say 18x12x2; cut one end out of a 60-lb. honey-tin or kerosene-tin, and then cut back 1½ inches; put in your "wet" mash which should not be wet, but crumbly—the right condition for fowls; place the tray on it and turn it upside down; and if your fowls are like mine they will empty it clean without waste.

This hopper question for a "wet" mash cost me some experimenting and brain gymnastics, and the above simple arrangement beats all I've tried.

WM. CHAS. BROWN.

Mosguel, Otago, New Zealand.

Permit me to explain that the tin can is cut off on opposite sides in such a way that, when inverted in the tray, there is a 1½-inch opening to permit the wet mash to get out to the chickens or to permit them to reach in and get it. I think the idea is a good one, especially for ducks, which are very much inclined to get their feet into the mash, and to make things "mussy" generally.

Health Notes

APPLES ARE RIPE.

I suppose that, this first day of August, most of you are rejoicing, like myself, in plenty of nice ripe apples; and even where you have not the pleasure of plucking them from your own trees when they are fully ripe, you are probably able to purchase them at the groceries or at the fruit-stands at a reasonable price. At least they *ought* to be reasonable, as apples are going to be plentiful in many localities.

The first to ripen here in Ohio are the old-fashioned Early Harvest, and the comparatively new Yellow Transparent—at least I have not been able to discover that there is any earlier apple known than the two I have just mentioned; and they are certainly a wonderful and beneficent gift from the great Father above to his hungry children. I do not know how it may be with the rest of you; but for myself there is no other fruit in the whole wide world that will take the place of luscious ripe mellow apples. I do not know which I like better—the Early Harvest or the Transparent. Sometimes I think one is ahead, and at other times the other. When the Transparent is so ripe that it can be peeled like a plum or a peach, it is then just right for my taste and for my digestion. When the old apples were all gone, about July 1, I began testing other sorts of fruit to see

if they would take the place of the apples; but I found nothing to hit the spot.

Frequently in very warm weather I have a little tendency to what used to be called "summer complaint;" and for several years I had a notion at such times that I would have to abstain from fruit. Three or four years ago, however, I discovered that nice mellow apples, eaten freely in place of my usual supper, about 5 o'clock, were really the best remedy. Please do not imagine, however, that I mean that sweet or very sweet apples can be taken in this way. They are pretty sure to make trouble. But tart apples, like the two kinds I have mentioned, seem to neutralize and quiet the disturbance. The acid in the apples (malic acid, I believe) seems to me to be nature's remedy for a bad taste in my mouth and for a disturbance in my digestive apparatus. In ordinary health I eat four or five fair-sized apples, sleep soundly afterward, and awake in the morning (especially if I sleep outdoors, or somewhere equivalent to outdoors) with my mouth tasting sweet and clean—no bad breath, no unpleasant bitterness.

Now, of course I can not be sure that the use of apples will answer in a like manner with everybody else; but I enjoy my fruit so much, and it is so conducive to excellent health, that I feel free to urge

you to try it. In place of your regular supper or third meal, use simply apples and nothing else; and after nature catches on to the fragrant program, see if you do not experience a like benefit with myself.

After the two early apples I have mentioned, the Red Astrakhan comes along—one of the most enticing-looking apples with its beautiful streaks and variations of red, then its delightful acid juiciness. A little after the Red Astrakhan comes the Maiden's Blush, so justly celebrated over all the world; then the Gravenstein, that stands almost if not quite at the very top of the list in quality. After this the rambos and pippins, too numerous to mention.

Just now our good friend E. C. Green, formerly with the Ohio Experiment Station, sends me a little basket of Red Junes. The shape is conical, somewhat like the Yellow Transparent; but the red is its distinguishing characteristic. When fully ripe, some specimens are of such a deep dark red that they are almost black. I believe there is an apple called the Black Ben Davis; but I have never seen one so red as this deep dark-red apple, the Red June. The Red June in quality is hardly as acid as the Yellow Transparent; but it is a beautiful apple notwithstanding.

Now, almost everybody can have at least a few apple trees. If you have room for only one, have that; and when you get it, give it good soil and cultivation. Learn to prune it judiciously, and enjoy the fun of seeing the apples grow from bud to blossom and then to ripe fruit ready to be gathered by your own hand. Unless you have had experience you do not know what a difference there is in fruit grown under cultivation and otherwise. Some years ago I had a queer neighbor whose great hobby was stable manure; and in the midst of his stable-manure garden was an apple tree. When the apples were just ripe he handed me a good big yellow mellow one. I tasted it with a happy surprise, supposing it was a new variety; but he informed me, with a smile, that it was only the well-known Early Harvest under the stimulus of "high-pressure gardening." And this reminds me that you want to study up on spraying so as to avoid getting wormy apples. A great part of the world does not yet know or dream of the possibilities in the line of improved apple culture. I wonder if it will be wrong to paraphrase as follows the old saying usually credited to good old Izaak Walton: "Doubtless God *could* have made a better fruit than the apple; but doubtless he *never did*."

DR. WILEY TALKS TO US ABOUT HABIT-FORMING DRUGS FOR CHILDREN.

We clip the following from the *Union Signal*. It is part of an address given by Dr. Wiley at the 50th anniversary of the National Educational Association at Chicago, July 6 to 12.

Through the teachers he gave to the fathers and mothers some wise advice: "Don't let the children use stimulants—distilled alcohol, tobacco, tea, or coffee. Those are wise parents who forbid these things; and yet right under the nose of the parents and of the city fathers in every drugstore in this city the children are permitted to buy at the soda-fountains 'dope' drinks which contain the very alkaloids and stimulants which the parents keep out of their children's mouths. I want the teachers of this country to help me engage in this crusade to put a stop to the sale of medicated drinks at the soda-fountains. You do not now find much cocaine in the drinks, but there are hundreds of so-called soft drinks which contain caffeine in large quantities. Coca Cola is a type of this 'dope' drink sold all over the country to the injury of every man, woman, or child who takes it.

"Another danger to which our children are exposed," declared the doctor, "is the everlasting habit of drugging themselves. The continued use of these medicines and drinks will in time produce a taste and craving for drugs. The school is the proper place in which to create an anti-drug sentiment, so that the next generation may not be ruined by the habit."

Directing his remarks for a minute to any editors who might be in the audience, he said: "Editors, do you realize your responsibility for admitting into your columns every kind of so-called remedies for any kind of disease? By so doing you are threatening the very bulwarks of the country."

As an illustration of the value he placed upon the ordinary cold remedy, he told the following incident: "My barber came to me last winter, telling me that his children all had colds, and he had procured from the drugstore some remedy guaranteed to cure these troubles. 'But,' he complained, 'I find it contains ten per cent of alcohol, and I don't want to teach my children to become drunkards. What would you do?' I said to him, 'I will give you a prescription if you will take it. Take that bottle to-night, into the room where those children sleep, and open wide every window, then throw out of a window the bottle of stuff, and leave the children to sleep in the room, and I'll warrant your children will get well.' A few days later I met him, and asked the result of his use of my prescription. With a glum look he replied, 'Taint no use to tell a woman nothin.'"

In closing his address, the doctor said:

"I believe it is the schoolroom, not the national conventions of politicians, that is the hope and safety of this country, and I for one will never despair of the republic if all the teachers will preach to the people sanitation, hygiene, fresh air, and abstinence from 'dopes' of all kinds."

I have for a long time felt that we were not only wasting money but harming our children, and, for that matter, grown-up people, by patronizing the soft-drink stands at our drugstores. People who talk about the "high cost of living" seem to think it is a small matter to spend a few nickels every day for ice-cream and ice-cold drinks. I feel sure this habit has much to do with the digestive troubles that afflict our people of the present day. And the saddest part of it is that the victims of these troubles imagine they are going to get relief by going back to the same drugstores and buying patent medicines.

Just a word about sleeping in a tight

room with doors and windows shut, even in summer. Mrs. Root called my attention to the fact that a great many children or young people—young girls who need pure air, perhaps, more than they need any thing else—persist in shutting every door and

window of their sleeping-room. Talk and remonstrance do not seem to do any good. They seem to think it an invasion of their rights if the suggestion is made that, during sleep, one needs the best air, and all the air there is outdoors.

Temperance

A DRUNKEN ENGINEER, ON THE MORNING OF
JULY 4, CAUSED THE DEATH
OF 41 PERSONS.

The Cleveland Press says:

SAYS ENGINEER WAS SERVED GIN; BARTENDER DECLARES SCHROEDER DRANK BEFORE WRECK.

Engineer Schroeder, who was in the cab of the express train that smashed into the Buffalo limited on the Lackawanna railroad near here early Fourth of July morning, causing the death of 41 persons, will take the stand in his own defense next Monday afternoon.

The coroner's inquest was adjourned Thursday until that time, on the assurance that Schroeder will then be sufficiently recovered from his attack of nervous prostration to tell his side of the case.

One witness has flatly sworn that Schroeder was drunk less than four hours before he took his train out. Three other witnesses, called late Wednesday, declared this false.

Other witnesses swore that they saw Schroeder assisting an intoxicated neighbor home four hours before he left on his run. Two saloonkeepers testified that Schroeder drank only water.

Charles Sharp, a bartender, testified he sold gin to Schroeder the night before the wreck. Schroeder had at least two drinks of gin, Sharp testified.

That Schroeder was called twice to go out on the run was made a part of the records.

Of course an effort was made or is being made to prove that the man was not drunk. You may be sure the brewers and liquor men will be on hand and ward off this terrible blow at this business if possible. The above clipping intimates as much. Now, right away after this comes a decision by the Pennsylvania road to drop liquor, as will be seen by reference to the item below.

THE GREAT RAILWAYS AND THE WAY THEY
ARE COMING TO OUR RESCUE.

Here is a clipping from the *National Stockman* that not only pleases me but suggests something I had not thought of. Read it:

LIQUOR ON TRAINS.

The Pennsylvania Railroad announces that the sale of intoxicants will be discontinued on all its trains east of Pittsburgh, and that the same rule will be extended to all roads in the great Pennsylvania System. We believe the public should express its approval of this policy, and hereby record ours. The railroad is bound to be the recipient of a large assortment of knocks and kicks from those who want intoxicants served on trains, hence it should have the moral support of those who believe its policy to be right. Railroads forbid their employees to use intoxicating liquors, and are inconsistent to the last degree when they sell them and compel some employees to handle them.

I confess it had not occurred to me, the awful inconsistency of demanding that employees should neither drink nor be found in a saloon, whether on duty or off, and at the same time sell liquors and ask employees to act as bar-tenders for the millionaires

who may happen to ride in their Pullman cars.

How long is it going to take the rest of the world, say manufacturers, for instance, to come out in the open, and declare war on the liquor traffic?

Later.—The following, from the *Plain Dealer*, corroborates what I have just been saying:

Employees of the Delaware, Lackawanna & Western Railroad must not drink, either on or off duty. Neither are they allowed to play poker during hours of idleness. All of this appears in the new order amending Rule G., of the transportation department of the line. A part of this amendment reads:

"The use of intoxicants while on or off duty, or the visiting of saloons or places where liquor is sold, incapacitates men for railroad service, and is absolutely prohibited. Any violation of this rule by employees will be sufficient cause for dismissal."

Investigation of the recent disastrous wreck at Corning, N. Y., led to the issuance of this order.

So it seems that prohibition *does* prohibit—at times.

We clip the following from the *Union Signal*, under the heading "Era of Prosperity in North Carolina."

EX-GOVERNOR GLENN, OF NORTH CAROLINA, TESTIFIES TO IMPROVED CONDITIONS
IN HIS STATE.

At the recent meeting in Louisville, Ky., of the General Assembly of the Presbyterian Church, Ex-governor Glenn told of the advance in his State since it abolished the liquor business:

"I come from a State where we have driven liquor out, and there is no grass growing in the streets of any of our cities and towns. Whereas North Carolina was noted—and shamefully so—only for her tar, pitch, and turpentine—now the State is entering upon an era of prosperity the like of which she has never known. She is gaining by leaps and bounds and this is attributed to state-wide prohibition. Crime has diminished fifty per cent, as is shown by the fact that forty prisons in the State are empty and idle. Formerly mothers were ashamed to allow their children to go to school because the fathers had taken the clothes from their backs that strong drink might be purchased. Since 1907, when the State went dry, the school attendance has doubled. There has been an increase of one-half in the attendance at the Baptist, Methodist, and Presbyterian churches, and a great wave of spirituality has swept over the State.

With the above report in view, and a number of similar ones from prohibition States, how *can* the people of any State continue to vote wet?

WET AND DRY IN OHIO.

Somebody has remarked that great reforms go by waves, and that every big wave for righteousness has a lull following, or perhaps a receding. When so many Ohio counties voted dry all at once, a good many

of us were discouraged at the backset the other way; but is it not possible that another wave for temperance is gaining force and volume? See the following, clipped from the *Cleveland Plain Dealer*:

BRYAN, O., July 23.—Williams Co. voted to-day under the Rose law, and by a majority of 1779 decided to remain dry.

How does that sound—1779? Praise the Lord for nearly 2000 majority on the "safe and sane" side. I feel a little sorry, however, that our friend the *Plain Dealer* did not have just one word of encouragement for the good people who worked so hard to bring this about.

While we are about it, here is something more that just came to my attention:

After October 1, absinthe, which is being sold in increasing quantities in the United States, will be barred from importation, and also from being transported from State to State. The Pure-food Board to-day decided that absinthe as a beverage is dangerous to health.

We rejoice to know from the above that absinthe is ruled out because of its being a dangerous habit-forming drug, and also because it can not be any longer transported from State to State. Now if Uncle Samuel would just say the same in regard to intoxicating liquors, what an achievement it would be!

By the way, the French government is now engaged in a conflict against absinthe, as its direful effects are getting to be so widespread as to affect materially the welfare of the nation. Its use was introduced into France from Algiers, where the French soldiers became greatly addicted to its use. Its use is now forbidden in the French army.

Later.—Switzerland has prohibited the drug.

BEER AND POLITICS.

See the following, from the *New York Tribune* for July 30:

LINER'S CARGO ALL BEER; GALLEON OF AMBER TREASURE COMES TO OUR RELIEF.

A great cargo of beer stole into this port last night under the cover of darkness in the hold of the North German Lloyd liner *Main* from Bremen. She had a few passengers, but they were outnumbered twenty-five to one by beer-kegs.

When the report came up from Quarantine that the *Main's* entire cargo consisted of 2583 barrels, Herr Knirim, the beer expert of Hanover Square, was called up on the telephone and told of it. He bubbled over with delight, so to speak. "I am not surprised," he said. "I thought something like that would happen. There has been a shortage of Pilsner and Munchner since the political conventions at Chicago and Baltimore, and the sangerfest recently held in Philadelphia has been a big item in diminishing the supply."

"The cargo in the *Main* is a big beer consignment. There are not many importers of beer in this country, and the biggest of them imports only 61,000 half-barrels a year."

When it comes to pass that a political convention results in a shortage of beer in our large cities such as Philadelphia, Chicago, and Baltimore, to the extent that

it exhausts our own national resources, what sort of president and governors can we expect from such great political conventions? We are much obliged to the *Tribune* for turning on the limelight, even should it prove true that their sympathies are with the brewers.

ELECTROCUTING THE MAN WHO SOLD THE DRINK, ETC.

Mr. A. I. Root:—In GLEANINGS for July 15, page 460, I notice you use the following language: "But if anybody is to be electrocuted, let it be the man who sold the drink." Now, my dear friend, I trust you will pardon me if I take issue with you on that point. Would you sell a man the right to engage in a certain line of business, take his money for the privilege, put it in your pocket, and then electrocute him for engaging in the business that you have just sold him the right to engage in? The man who sold the drink was doing a lawful business, and had paid his money for the right to do so. His business is made lawful by the party in power—a party that is sustained and kept alive by the vote of Christian men who knowingly sustain the liquor traffic by voting for a party that has legalized, upheld, defended, and protected the liquor traffic whenever in power ever since the party had an existence, and is doing it to-day.

It is easy to see why prohibition doesn't prohibit—because the law is put into the hands of old whisky-party officials who don't want it to prohibit. "Put new wine into new bottles, and both are preserved."

Morenci, Mich., July 17. W. S. G. MASON.

Amen to what you say, Bro. Mason. When I said what I did, I did not contemplate voting for a man who is afraid to "come out in the open" against the liquor business. Now it is up to Woodrow Wilson to come out thus and tell us whether or not he has anything to say in regard to the rum traffic.

WHO SHALL BE ELECTROCUTED? ETC.

Mr. Root:—In commenting on Thomas Dewees' letter, page 460, July 1, you say the letter has given you a new suggestion, saying, "Do not put to death any more men who commit murder under the influence of drink; but if anybody is to be electrocuted, let it be the man who sold the drink." I shall have to differ with you as to the one who should be electrocuted (if any should). I say, electrocute the man or men or political party who gave the man the privilege to sell the drink that makes men drunk and then commit murder without a license. I am not a saloonkeeper, by any means; but let us give them their just dues. A saloonkeeper, so far as the liquor traffic is concerned, is no worse than the man or men or political party that gives him the license to sell the drink. This thing of laying the blame on the saloonkeeper for all the drunkenness and murders, etc., is old. It would have done 25 years ago; but we have become too much enlightened now to lay the blame on them alone. Lay it where it belongs—on the voter. You say, under the heading "Prevention Better Than Cure," "Not one of the candidates for the presidency of the United States—that is, one with any prospects of election—dares open his mouth in regard to recommending prevention as being better than cure." Who really knows who has any chance of election? If all the church members who vote, and all the professed Christians, would vote for the candidate who dares open his mouth in regard to recommending prevention as being better than cure, we could put Mr. Eugene Chafin in the White House in 1913. He is the man who, if elected, would "make mention" of the liquor traffic in his message. I am like you in some respects. I am watching and praying, and also voting for a man and party that fears God but does not fear the liquor powers.

Rosedale, Ind., July 29.

J. R. HEATON.

Gleanings in Bee Culture

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Editorial

WE are pleased to announce that Mr. F. W. L. Sladen, F. E. S., of Ripple Court Apiary, near Dover, England, has been appointed as assistant in apiculture to the Dominion Entomologist, Dr. Gordon Hewitt, of the Department of Agriculture, Ottawa, Canada. Mr. Sladen has a high reputation as a beekeeper and also as a student of entomology, having studied the wild bees and other hymenoptera in various parts of the world. We congratulate both Dr. Hewitt and Mr. Sladen.

CLOVER STILL YIELDING; A BUMPER CLOVER CROP FOR NEXT YEAR.

ELSEWHERE we have spoken of the belated clover flows in the United States. The clovers are still in bloom, in some localities, and are yielding some honey when the weather turns off warm. In fact, there has not been a day in our locality since the last of June when clover did not yield some nectar, provided the bees could fly and the weather was not too cool. We have had less robbing than for many years back. The frequent rains have made every thing yield nectar. As usual, rains have been more or less universal over the northern half of the country; and it is apparent that, unless there is a very severe drouth in late fall, or a bad winter-killing later on, there will be an unusual crop of honey from white clover next year, for there is a heavy growth of clover almost everywhere in the North.

DEATH OF ANOTHER VETERAN BEEKEEPER, LAWYER, AND STATESMAN.

WE are sorry to have to announce the death of the Hon. R. L. Taylor, of Lapeer, Mich., on the 17th of August, at the age of 72 years. Mr. Taylor was one of the leading beekeepers of the country, and for many years director and legal adviser of the National Beekeepers' Association. He was an attorney and statesman of ability. He was not only an up-to-date beekeeper but a progressive fruit-grower—a man, in

fact, who took an ardent interest in all outdoor pursuits.

He had much to do with shaping the legislative policies of the National Beekeepers' Association, a warm friend and supporter of the late W. Z. Hutchinson, an admirer of Mr. James Heddon, and a user of his divisible-brood-chamber hive, of which he had at one time upward of 500. He was an occasional contributor to all the bee journals, writing particularly for the *Beekeepers' Review*.

At one time he conducted a valuable series of apicultural experiments for the State of Michigan, reporting the results in the *Review*. He will be missed in the councils of beekeepers, not only in Michigan, but throughout the United States, for he had come to be a man of national prominence in the beekeeping world.

ANOTHER INSTANCE OF HOW THE SPRAYING OF FRUIT TREES HAS DESTROYED THOUSANDS OF DOLLARS' WORTH OF BEES.

In this issue, in the department of Beekeeping Among the Rockies, by Wesley Foster, there is given some pretty convincing evidence to show that the spraying of fruit trees with arsenate of lead to destroy leaf rollers and the codling moth has resulted in the destruction of an immense amount of brood and bees. It is further stated that a Mr. Harvey, of Montrose, estimates his loss as over \$2000, the result of such spraying.

While Paris green is often used for the spraying of fruit-trees to kill the leaf rollers and codling moth, arsenate of lead is getting to be more generally used. Whether it is more destructive to bees than Paris green, we do not know; but apparently our leading fruit-growers regard it as a very superior substitute for Paris green. It may be admitted that in some cases bees are not killed by the use of these poisons, yet it seems to us that the proof is becoming more and more conclusive that fearful destruction is and has

in many cases been brought on the bee business when fruit-growers are so ignorant of their own interests as to spray while the trees are in bloom. This matter should come before our State and national associations of beekeepers, to the end that the needed legislation may be secured to protect beekeepers against their ignorant neighbors the fruit-growers. There should be little or no opposition, as our leading horticulturists admit that it is a positive damage to spray while trees are in bloom.

HONEY-CROP CONDITIONS.

THERE is not much to add to what we have already given on pages 509 to 512 in our last issue; but the spell of cold rainy weather that has prevailed over the United States during the last two weeks would have a tendency to cut down the yield where belated clover was still in bloom, for it should be understood that clover came into bearing this year much later than usual, and continued over a longer period. The effect of chilly weather of late will have a tendency to make the general clover crop in the East somewhat lighter than the earlier indications showed.

PRICES.

By consulting the Honey Column in this issue it will be seen that the market is a little unsettled with a tendency to maintain last year's prices. There should not be a slump in prices, because California and some other parts of the West will not have as large a crop as usual. The shortage in bees in the East will have a tendency to hold prices level. If there comes a general reduction by reason of a big crop of white-clover honey that is still in the hands of the beekeepers, it will be when this honey is unloaded and reaches the general market. The opinion seems to prevail that there is a large amount of clover honey still held back, and that prices are now as high as they will be this season; that those who have a crop ready to market would do well to sell at once.

LATER.—Late reports indicate that the clover and basswood crops in Illinois and Wisconsin are going to be light. The cool weather coming on just when the season should have been at its best, checked the flow of honey. As Illinois and Wisconsin are two of the principal States for the production of clover honey, it will reduce the general aggregate of clover.

Reports from other sections of the country in the East are very favorable. The State of Maine has had apparently a good crop. See the following:

From all reports, so far as I can tell, we have had in this State one of the best seasons for honey in many years. Nearly every one who comes here for supplies tells of the wonderful yields they have had. Not one, but many, have reported that they have taken off two and three complete supers, and the bees were at work in the third and fourth supers. This is extra good for this State, although it would indicate by reports that the yield had not been quite as good in the eastern part of the State as in the western.

Mechanic Falls, Me., Aug. 15. J. B. MASON.

Here is also a report from Mr. Crane, of Vermont, just as we go to press:

Bees have done fairly well here; but the drouth in July cut short the crop—an average crop, I think.

Middlebury, Vt., Aug. 21. J. E. CRANE.

THE LAST OF THE SPECIAL NUMBERS FOR 1912.

THIS special number on wintering completes the six special numbers that we advertised for the year 1912. We believe that most of our readers have appreciated the effort that we have made in placing before them practically a whole number of GLEANINGS containing the information that they needed most at the time. We are well aware that we can not please all of our readers all of the time. This special number, for instance, will have little interest for our subscribers in California and in the South; and the seasons are so different in many of the foreign countries that discussions on wintering would be more timely if they came in February or March; but it has been our aim, as we said before, to please the largest number possible.

There have been two who have objected to our special numbers. One of our friends, after reading the February 15th issue, wrote us that, if we were going to turn GLEANINGS into a poultry paper, he would quit then and there. He had not noticed the announcement of our special numbers, and did not know that we were having more to say about the combination of bees and poultry than usual in that number. Another thought that we were hardly giving full value for his money when we devoted so much space in the April 1st issue to automobiles. We have had hundreds of letters of appreciation, especially of our horticultural number, and also of the one on swarming and increase.

We should like to know whether there are other subjects on which it would be worth while to devote a whole number of GLEANINGS. If you have any ideas on the subject, let us have them on a postal card. Already several have suggested that we have a special number on beekeeping for women. It is probable that we shall

arrange for this some time next year; and in anticipation of it we should be very glad if our readers belonging to the gentler sex would send us their experiences. Why did you take up beekeeping? What are you making out of it? If you do all the work yourself, how do you manage about heavy lifting? Where do you sell your honey? We shall, of course, appreciate good pictures; and for all of those that we can use, and for such articles as we accept, we shall expect to pay probably a little more than our usual rates.

TENEMENT HIVES FOR OUTDOOR BREEDING.

In this issue will be found several articles describing various forms of tenement hives for wintering bees outdoors. Some thirty years ago this scheme of wintering groups of hives in one big winter case, with packing between the hives and the walls, was exploited a good deal more than it has been during late years; but during the last two years there seems to have been a simultaneous if not a spontaneous movement on the part of a number of beekeepers to go back to the old principle. Apparently there was no previous understanding between these various parties. Cellar wintering, under average conditions, does not accomplish all that is desired; and perhaps we may say the same is true of the ordinary outdoor wintering; but Mr. R. F. Holtermann, of Brantford, Ont., one of the number who have adopted the tenement principle, apparently did so, not because it wintered bees any better than the old way of wintering in the cellar, but because bees, when packed outdoors, do not require any further watching or manipulation till quite late in the spring, when they need to be equalized and other spring work of a like character attended to. It so happens that Mr. Holtermann had other work to do during the winter, and he was compelled to adopt some form of wintering that requires less constant watching of temperature and ventilators than the ordinary up-to-date cellar demands. It should be understood that Mr. Holtermann had one of the best bee-cellars, if not the very best, in the United States or in Canada. In fact, this cellar is shown in our A B C and X Y Z of Bee Culture as an ideal cellar. That Mr. Holtermann wintered his bees successfully in such a cellar is not to be doubted. He would have been using that cellar to-day, probably, had it been possible for him to be at home during the winter, when he could control conditions. Now, he can be away all winter, let the bees sleep for six or seven months, and

yet during all that time, with not a soul near them, he has the very comfortable feeling that his bees do not need attention, because they can take care of themselves.

For very cold climates the tenement plan has its advantages; and an outside winter case for four, six, eight, or even ten hives is relatively cheaper than a double-walled hive or even a winter case for a single-walled hive. Cheap panels can be made up out of low-priced lumber; and when suitable hooks and eyes are provided the whole can be assembled around a group of hives in a comparatively short time. A wheelbarrow or a wagonload of packing material can then be shoveled on top.

A couple of beekeepers of Canada told me last winter that the principle is as good in practice as it is in theory; and the best part of it all is that the individual colonies do not have any outside exposure more than the front, if there be two rows of hives. If there be but one tier, there will be an exposure of front and rear, and one side of each end hive. In either case the individual warmth of the clusters or several hives is conserved and not dissipated by so many outside exposures as we have when a single colony is wintered outdoors; and if one colony of a group happens to be a little weaker than some of the others, it shares the heat of the whole bunch.

Another nice thing about the arrangement is that it will work as well in cold as in milder climates. If it is an open winter when the bees can fly, there will be no trouble, as there would be if the bees were in one of the best bee cellars. When it is warm outside, the temperature of the cellar runs so high that the bees become uneasy and die by the thousands.

We believe the tenement hive has come to stay. The logic of last winter has rather jammed that fact into the heads of some located in the colder climates. Of course, we do not expect to have many winters as cold as the last one; but we never know when they will come; and from the facts already gathered it will be seen that the tenement hive is always ready, either for extremely cold climates or a mild one, or for warm winters or cold ones.

Of late there has been quite a tendency toward outdoor wintering; but the cold winter through which we have just passed is discouraging to some in the far north who have been using double-walled hives—not because they were not all sufficient during an ordinary winter, but because they hardly afforded adequate protection during an extraordinarily cold one.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

NO WONDER, says Dr. Kramer, *Schweiz. Bztg.*, 217, that yellow bees flourish better in America than in Switzerland, because America has potash soils.

BEES DESERT watering-places when oranges bloom, p. 435. Isn't it the same thing with any other bloom? I can tell when a flow lets up by seeing the bees begin again on the water-tub.

THE EDITOR of *Deutsche Bienenzucht* counts it of great importance upon introducing a queen to cage first the old queen in the hive a few hours, then put the new queen in the same cage, and in the same place in the hive, and let the bees release her. He says the bees do not know their mother at all, only her odor, and that odor is given to the new queen by the cage as covering her own odor, if I understand correctly. [There may be something in this; but it would be a lot of work to cage and recage queens for introducing. We doubt whether it would pay.—Ed.]

DO BEES sting drones to death? When you see a worker sting another worker you don't have to watch very long before you see the bee curl up and die. Did any one ever see a drone curl up and die immediately after a worker had stung it or pretended to sting it? [We have seen bees make a bluff at stinging drones, but never saw them do the act. It is our belief that, when the honey-flow stops, the drones are simply pushed out of the hives, and that they simply die from starvation. We do not believe that nature has designed that worker bees shall sacrifice themselves as well as the drones, because it is cheaper to starve them than to sting them to death.—Ed.]

I SUPPOSE beekeepers will smile a quiet smile of indulgence upon reading, p. 384, that bees recognize the different spots of playing-cards. And yet—and yet, is it not just possible that bees are guided by form much more than by color? And is it proved beyond a doubt that they can not distinguish at a glance the difference between an eight-spot and a ten-spot just as well as we can? We are too prone to measure every thing by our own senses. One who knows nothing about the keen scent of dogs would likely be skeptical upon hearing of a hound scenting a trail upon the full run. If a creature with four legs is so much beyond us in the matter of scent, may not one with six be just as much beyond us in the matter of recognizing form?

HARRY G. BRANT, p. 417, it must be a very exceptional case when bees trouble boxes of berries. For years strawberries, raspberries, and blackberries have been on my place, the first two part of the time by the acre; and although boxes of berries were freely exposed for hours, I never heard any complaint about the bees. During all these years there must, too, have been times of dearth, and certainly there we were feeding bees this year during the first of strawberry-picking. By the way, A. I. Root, we have a seedling that would interest you. I think it is a little the best strawberry I ever tasted, and one of the largest. Some object that it is not sour enough. [Years ago, when A. I. Root grew strawberries for market in a large way, we had 500 colonies and nuclei located within a stone's throw of the berry-patches, and at an equal distance boxes of berries were placed before they were actually sold; but never once did the bees attack the berries so far as we can remember.—Ed.]

YOU SAY, Mr. Editor, p. 396, that bees of a foul-broody hive would carry the disease into hives near by. I suppose that means that the bees of the diseased colony returned from the field and entered wrong hives. That's worth thinking about, for it knocks out the Baldrige cure of foul brood, according to which bees that go to the field return without any disease. Some error one side or the other. [Perhaps our statement, page 396, was a little strong; but nevertheless, when we had foul brood years ago we were in the habit of examining the combs of near-by colonies that faced in the same direction — especially that colony which had an appearance and location almost exactly the same as the one affected. If the diseased colony in the first place was a bad one, we were almost sure to find a few stray bad cells in the nearest of two or three hives facing in the same direction.]

We have been a little slow about recommending the Baldrige method of treatment, for the very reason suggested by you. It has been our preaching and our practice, that, the sooner a diseased comb is gotten out of the hive, the better. The only time we have recommended the Baldrige treatment is when a great deal of brood in the apiary is involved, the sacrifice of which for a few bad cells in the comb would be considerable. Where only occasional colonies are affected we would treat at once; that is, we melt up every comb containing a diseased cell or two, or more.—Ed.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The weather during June and July was the coldest for 21 years.

* * *

Five big meetings for beekeepers have been arranged by the State Association, acting with the University of California. It would have been a great help to have these meetings advertised in the bee journals in advance, but the date was not fixed in time for that.

* * *

With a fine-pointed medicine-dropper I sucked the honey from orange-blossoms, measured it by drops, and computed it by apothecaries' rules, on an estimated number of blossoms per tree. The result was an amount so large that, for the sake of my veracity, I will not give my figures.

* * *

A county association has been formed in San Bernardino Co. to meet alternately at San Bernardino and Redlands on the first Monday evening of each month. The writer is secretary for the present, and those wishing to join and help with the work will kindly communicate with him.

* * *

As I look at the pictures of the remains of Mr. Atwater's apiary, destroyed by fire, page 483, Aug. 1, I can not help thinking of the many apiaries that have met a like fate by brush fires in California, all of which could have been prevented by keeping weeds, grass, or other dead vegetation out of the yards.

* * *

The monthly crop report of the California Beekeepers' Association has been a great success. The reports were within themselves well worth the annual dues charged for membership. I believe, however, more local data should be given. Beekeepers seem especially anxious to know what the different localities of the State are doing.

* * *

The other day I had occasion to shift the lower story of a hive to the top, setting the super beneath. The lower story was painted white, while the super had been primed with oil and yellow ochre, and it was amusing to watch the bees alight at the bottom of the white story, after they were shifted, and try to find an entrance between the two sections of the hive. It suggested to me that color as well as position has a part in helping the bees to locate the entrance.

While in the act of introducing an imported queen a few days ago I discovered a well-developed case of American foul brood in my back yard. This is the first case I have had for four years, and it has undoubtedly been contracted from diseased bees near by, of which I am sure there are many. From information that I have gained recently I am led to believe that there are hundreds of diseased colonies in San Bernardino County.

* * *

I quote the following from the report of the San Bernardino Co. grand jury:

We have examined the books in the office of the County Bee Inspector, and find that the principal charge made by the bee inspector is for office work; but it appears he spends very little time in his office. After investigation had, we would report that the present County Bee Inspector is not conducting his office in an efficient manner, and we would, therefore, recommend that the said office be declared vacant by the board of supervisors.

The following quotation was taken from the *Daily Facts* a few weeks later:

The office of County Bee Inspector, graced by "Bob" Heron, was declared indefinitely vacated although Inspector Heron presented a lot of documents to show what a good man he was.

* * *

I have been receiving queens from several localities the past few weeks. Some have been in cages entirely too small and with too few attendants accompanying them. One which I received had but eight attendants, and three of those had died. I waited almost two months for the arrival of one order, and several weeks for another. Becoming disgusted at waiting so long, I tried a third breeder, ordering by wire, and had my queens introduced the 6th day from date of my order, though they came more than 2000 miles through the mail.

* * *

Louis H. Scholl, page 434, July 15, tells why Texas beekeepers failed after having such bright prospects. Nearly all of us can sympathize with Mr. Scholl and his Texas neighbors, having traveled the same road ourselves at different times. The great majority of California beekeepers have had the same experience this year, but they should not be inclined to give up, though it is discouraging indeed. I should not be surprised to see a good crop next season; but any way it will be necessary to keep a "stiff upper lip" and take good care of the bees, as we may "hit it hard" again some day. The beekeeper who has his hives full of bees is the one who will reap the greatest reward.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

A letter from one of the best-known apirarists in Illinois says, "We are still feeding our bees, and expect to for another month, as there is hardly a clover blossom in our section, and we can get no honey till the fall flow." While conditions were not so bad in our section, yet a statement like that in the latter end of June made me think that we should be very thankful that things are as good as they are.

* * *

Clover has been very scarce in many parts of Ontario this year; but prospects are exceptionally good for another season, as the spring "catch" is one of the best for many years. Alsike seed is very high in price, and the many fields now covered with a growth of this clover will be left for seed another year. Given a normal winter, things certainly look good for next season; and beekeepers will, no doubt, see that their stock is put in good condition for the winter, whether it be a mild or severe one. Extra good preparation does no harm, even if a moderate winter should come; and if extra severe, the precautions taken will repay tenfold all attention given.

* * *

Unseasonably cool weather during all of basswood bloom prevented much honey being gathered, even if basswood did make the best showing for ten years. However, basswood lasted nearly three weeks, and considerable honey came in along with the thistle—the latter plant yielding better than for some time. Prospects are now good for buckwheat if we get warm weather; and, by the way, we have had less warm weather this past summer than the "oldest inhabitant" can recall during any other year. However, a medium crop has been secured by all I have heard from; and as bees are in fine condition there should be no great kick coming from the fraternity, especially when prices are good and the demand practically unlimited.

* * *

Recently we have seen some statements in the bee journals which would go to prove that spraying fruit-trees while in bloom is not injurious to bees. While I am at all times open to conviction, it will take a good deal of substantial evidence to convince me that bees do not suffer severely when spraying is done at this time, and I believe a great deal of evidence, thorough-

ly reliable, can be given to prove the opposite. Indeed, I think it is very unfortunate that the non-poisoning theory should be given any prominence, for some men would be only too glad for a chance to go back to the old way. I say "some men," and by this I do not include the well-informed fruit-grower, as he knows that the bees are his friends, and will take no chances on killing them on the blossoms, especially when he has, in addition to this, learned that the blossoms are injured when sprayed while in full bloom.

* * *

On page 166 Will Jensen makes some astounding claims for the plan he advocates for doing away with spring dwindling. Being as far south as Texas, I am made to wonder how it is that he has so many weak colonies as to be able to figure out that he saves 97 per cent each year by the plan. If I understand the plan correctly, he compels the bees to extend their brood area by dividing the combs with a sheet of foundation—the last thing the most of us would think of—well, he may be all right for his "locality;" but, as the Scotchman would say, "I hae my doots." [If we are not mistaken, Mr. Jensen's experience has been in Virginia chiefly, this year being his first in Texas.—ED.]

* * *

Weather has been very hot during past few weeks, and that reminds me of a rather amusing thing that happened in Toronto last week. Needless to say, many of our American cousins have some queer notions as to the condition of Canada, climatic and otherwise; and, judging by letters I have received, many think we never have any warm weather up here. Any way, last week the International Association of Police Chiefs held their convention in Toronto, and Secretary Carr took the care, when sending out circulars of instructions to delegates that were coming, to advise them to bring heavy underwear and light overcoats with them. Many of them did so, and one can imagine how they felt about it when they found the heat so intense. The chief from St. Louis said it had his city "beat to a frazzle," to use a current expression; and when next time they visit Canada they will hesitate about following their secretary's advice, even if the convention should be held in January.

WESLEY FOSTER, Boulder, Colo.

* * *

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* * *

Mr. Harvey, of Montrose, told me that he had lost fully \$2000 by fruit-growers spraying for codling moth when the trees were in bloom; but that, during the last few years, the fruitmen were learning better when to spray. I do not know how well informed beemen are in other places; but the majority of Colorado specialist beekeepers do not blame the fruitmen for killing their bees with arsenical spray when the trouble is foul brood. Our Colorado men are pretty close observers.

Conversations with Doolittle

At Borodino, New York

BEES TEARING DOWN QUEEN-CELLS.

What causes bees to tear down queen-cells about the time the young queen larvae are changing to the pupal form? I have been having trouble in this way during the entire season, especially since the flow of nectar has stopped. I have tried caging the reigning queen, or fastening her to one side of the hive with a queen-excluder, or placing the cells over a queen-excluder on a strong extracting colony; but the bees seem to tear down the cells about the same, no matter where I try to keep them. I have fed the bees liberally, but I do not see that this makes any difference. Then I have used black bees, hybrids, and pure Italians; yet the destruction goes on all the same, until I have become nearly discouraged. Can you tell me what causes this trouble?

There are several causes for bees tearing down their queen-cells after they have built them and have gotten them all sealed over. The most common one is a sudden stop in the nectar flow from the fields, which cessation, if long continued, results in the destruction of all queen-cells, and many times the killing-off of all drones. And I may add here that, if feeding is not resorted to as soon as this flow of nectar ceases, it will have little effect toward saving the cells after the bees have once decided on tearing them down, although it will generally preserve the drones. So the queen-breeder should be constantly on the lookout so that he may know just when there is a stop in the secretion of nectar in the flowers. For this purpose, as well as for many others, a hive having a strong colony should be placed on scales, so that a glance each day may confirm his observation of conditions.

The next most common cause for the destruction of queen-cells is that a virgin queen gets into the apartment where cells have been placed for safe keeping. They sometimes appear where it seems impossible. Once I opened the hive of a colony which had three frames of cells in different stages of completion, in order to take out the frame having ripe cells, which I wished to use. While stopping to do a little other work I set one of the other frames having queen-cells down outside of the hive. It remained there perhaps two or three minutes, when it was returned and the hive closed. Two days later I went to this hive, and my surprise can be imagined to find some forty-five of the fifty-two cells I had left there two days before all destroyed. It was about two o'clock when I was there the first time, this being about the time queens take their flight; but it did not seem possible that any virgin queen could have entered the hive during the time it was open.

The hive standing next to this colony

had a virgin which was old enough to fly out, and I soon decided to open this hive and look for her. The moment I lifted the covering the mournful humming noise made by the bees indicated that they were hopelessly queenless. It then dawned on my mind that this queen was out two days before, and had divined that the colony I had opened needed her presence there, so she had either alighted on the frame while it was standing outside the hive or had gone in at the top unnoticed. This queen had a little dark spot on one of her sides, so I at once looked over the upper hive where the cells were destroyed, and soon found her there. This was one of the most far-reaching losses I had ever had up to that time, and I was greatly inconvenienced and chagrined over the matter. But I take it that neither of these cases is identical with the experience of the correspondent, as his seems to be a long-drawn-out difficulty.

Up to about ten years ago I could account in one way or another for the tearing-down of queen-cells. But there came a year when, after about the 10th of August, colonies in which I had cells stored would begin to tear down a few, from two to five or six, doing so gradually from the time the queens in them arrived at the pupal form till they were about to emerge from their cells. And they would do this even in queenless colonies. I fed them right along and looked carefully for any virgin queen that might have gotten in, but all to no avail. All the plans which I had used successfully for twenty years failed. I had no trouble in getting queen-cells started; and, as a rule, sealed, but soon after this the bees would begin to tear them down slowly, till I got behind in filling orders, and became exasperated. While lying awake one night bemoaning this state of affairs the idea of making such colonies hopelessly broodless, all but the queen-cells, occurred to me. The next day I tried the scheme, and all worker brood, whether sealed or unsealed, was taken from hives having queen-cells stored therein. This settled the matter, and since then I have had no trouble of this kind.

Bee-stings for Sciatic Rheumatism

I have had sciatic rheumatism for two years. I am applying the stings daily on my arms, and am meeting with good results. I will report later.

Winfield, Pa., July 25.

LEVI HUMMEL.

General Correspondence

A SUCCESSFUL QUEEN-CAGE CANDY MADE WITHOUT HONEY

A Substitute for Sealed Honey During the Winter

BY ARTHUR C. MILLER

He who makes available the principles embodied in a good idea is quite as much to be honored as he who originates it; and he who makes practical what another has only partly developed is also a benefactor. Sometimes necessity is quite as often the foster-mother of a half-grown plan as she is reputed to be the mother of invention. Apropos of which is the result accomplished by one New England queen-breeder when bee-disease laws and postal rulings bade fair to hamper his business seriously. Reference is made to the work of Mr. O. F. Fuller, of Blackstone, Mass., a persistent sort of chap who seems to have a way of making good with ideas which some one else has *not quite* won with. Confronted with the troubles alluded to, and hearing of a bee food or candy containing no honey, he sent to England for samples and recipes. In due time both arrived, together with a feeder in which to use the candy. But the candy did not behave according to rule or expectations, having a faculty of getting too hard or too soft. So, instead of guessing, Mr. Fuller hies himself to an acquaintance who is a professional candy-maker, shows him his bee-candy and the recipe, tells him the trouble and what he desires to accomplish. The candy-maker very cordially tells him all he can about it, and also tells him what ingredients to increase or decrease in experimenting. At the problem Mr. Fuller goes with his usual persistence, and the result is success, as might be expected. He has a candy which he and other queen-breeders have been using all the season with perfect success, and not a drop of honey is in it. The recipe has been very generously furnished by Mr. Fuller, and here follows:

Granulated sugar, 5 lbs.; coffee A sugar, 1 lb.; glucose, 1 lb.; water, 1½ pints; one level teaspoonful of cream tartar.

Boil until the temperature reaches 240 degrees F. for summer use, or 232 F. for winter use. Do *not* stir it while cooking. When it reaches the desired temperature, remove from fire and let it cool until the finger can be held in it for half a minute, then stir and stir until it is so thick that it will barely pour out. It may then be run into molds, feeders, or cages. If kept

in a closed receptacle it will not change for an undetermined period, the writer having some made last February which shows no change yet, and Mr. Fuller says it will keep indefinitely.

Any thermometer which will register up to 300 degrees F. will do to test the cooking syrup; but a regular candy-maker's thermometer is better, if one plans to make much candy.

Queens have been successfully shipped pretty much over this country and Canada and to England with it. Full colonies shaken from their combs have been shipped with no other food than this candy, and with the best of results.

He and others also use this candy in feeders as a winter food, and many Massachusetts and New Hampshire beekeepers are high in their praise of it.

Last winter, which we all know was a severe one, it was used in quite a number of cases where the bees had so little honey it could be called none, and the colonies supplied with the candy wintered excellently. Incidentally, a very few pounds of candy took the place of many pounds of honey.

The feeder used for the purpose is an English device. As made and used by Mr. Fuller, it is a rectangular frame made of strips of wood about two inches wide. These are grooved about ¼ inch from one edge, and into this groove a pane of glass is slipped, making a box with a glass bottom. Mr. Fuller's feeders take a pane 6x8 inches. These boxes are filled with the candy when it is hot and soft, the candy coming within about a bee-space of the top. When it is cold it can be handled like a block. Each feeder holds about 2½ lbs.

Two or more of these are inverted over the top of the brood-frames, and covered with cushions or some similar protection. The bees have access to the whole of the now under surface of the candy. No moisture or air can get at the edges or top of the cake, so it neither hardens nor softens. By turning back the cushion the beekeeper can readily see how much of the food is consumed.

Mr. Fuller does not claim any of this as original; but he does know that he has made a success in the compounding of a candy for bees which is without honey. He has given to the old candy-feeding system the one or two little kinks which it needed to make it all that can be desired. To the queen trade, and thence to all beekeepers, he has brought a boon in the shape of a thoroughly practical and successful food

which is free from all the dangers of a candy containing honey.

Providence, R. I., Aug. 13.

[It is to be hoped that a candy of this description may come into general use; for, aside from the danger of disease, honey is not always uniform, and, furthermore, it takes up moisture so rapidly that the candy containing it is likely to become disastrously soft in damp warm weather. We should think that the glucose candy would be an improvement in this respect, but we may be mistaken.]

We wonder whether the commercial glucose purchased in this country would be satisfactory. The so called corn syrups evidently would not, because of the varying amounts of cane sugar which they contain.—Ed.]

LIME DOES DRY A CELLAR

BY JAMES M. MUNRO

In reviewing GLEANINGS, Feb. 15, 1911, p. 110, I take decided objection to the heading of an article by F. L. Huggins, "Lime in the Cellar will Not Dry the Air," and what makes it the more misleading is that he uses terms in chemistry to substantiate his position. I have worked in a lime trade for the past 40 years, and I know of no better agent than stone lime (CaO) to absorb moisture unless it may be fire.

For those of us who have to winter our bees in a clay cellar in a severely cold climate I consider lime a most useful article, as it dries the air and does not give off any poisonous gases as some methods of temporary cellar heating do.

OTHER USES OF LIME.

How many know that air-slacked lime, dusted into places where it is not convenient to whitewash, is death to mold? How many farmers know that, if they are caught in a shower with a load of hay, a light sprinkle of air-slaked lime will prevent it from turning musty, and that it is a benefit rather than an injury to the stock? How many know that a dusting of air-slaked lime applied to potato tops on a damp morning in a summer fog will prevent potato blight?

I begin the prevention by dusting with lime as soon as the potatoes are cut. This not only lessens the chance of the seed rotting, but is a cheap fertilizer, and a preventive against grubs. Then when I harvest my potatoes I sprinkle an occasional handful as I empty them into the cellar. I haul them directly from the field and have no more handling of them, only

as required for sale, use, or planting. Before I adopted this plan I used to have to sort the rotten ones out at intervals during the winter. I put the lime treatment to the test in a small way before adopting it wholesale to hundreds of bushels as I do now. Upward of 20 years ago I had some Beauty of Hebron potatoes, and many of us know how susceptible they were to rot. They began to rot, and I put one lot in a box with lime sprinkled in. The others I put in a box without any lime. The unlimed ones rotted so badly that they became a mass of corruption. The lime-treated ones came out dry; and wherever a spot of disease had begun it had dried up.

I consider no farmer's home to be well equipped without a barrel of lime stored in a dry place

A GOOD RECORD IN A SMALL CELLAR.

A year ago I was so beset with work that I failed to weigh any of the hives. Many of them felt too light. Four were nuclei. So, naturally, I risked it. I piled them in the cellar like so many rows of stovewood. The size of the cellar is 9x11 feet, 6 feet high, raised 16 inches from the floor, so I think you will smile at the crowded aspect 84 colonies would present. The winter, of course, was very severe, and there was very little snow here. The temperature frequently fell to 40 and even 60 degrees below zero. I began taking cellar notes Jan. 2, which are as follows:

1912.	Jan. 2.	Tem.	26	degrees	above	zero	in	cellar
"	"	11	"	28	"	"	"	"
"	"	16	"	33	"	"	"	"
"	"	30	"	36	"	"	"	"
"	Feb. 12	"	34	"	"	"	"	"
"	"	17	"	44	"	"	"	"
"	"	28	"	37	"	"	"	"
"	March 4	"	36	"	"	"	"	"
"	"	20	"	39	"	"	"	"
"	"	21	"	41	"	"	"	"
"	"	25	"	42	"	"	"	"
"	April 4	"	48	"	"	"	"	"
"	"	10	"	48	"	"	"	"

On April 12 I set the bees out on their summer stands. The night temperature outside was 21 above zero. The bees gathered the first pollen on April 23 from black-alder bushes.

Now with all this abuse you will wonder how many came out alive. Out of the 84 colonies put into cellar, 78 came through in good order; and what I am surprised at is the small quantity of stores they consumed. I use the ten-frame Langstroth hive exclusively.

Slate River, Ont., Feb. 2.

[If we understand Mr. Huggins correctly, his idea was that the lime would not permanently dry the cellar unless moist air from outside could be kept from coming in again. However, since most cellars

that are wet are wet because of poor drainage, etc., it would seem to us that the lime would be of advantage.—ED.

WINTERING IN SINGLE-WALLED HIVES IN KANSAS

BY ARTHUR V. SMALL

I winter my bees out of doors in single-walled hives, protected in the following manner: Two frames are removed from each hive. A piece of shingle, with a half-inch strip under each end, is placed crosswise over the frames, which provides an upper passageway for the bees from one comb to another. A piece of oilcloth is placed over this, extending nearly to the bottom-board on each side of the frames. The space between this oilcloth and the side of the hives is filled with about fifty thicknesses of newspaper which are suspended from a strip similar to the top-bar of a frame. The papers extend to within an inch of the bottom-board. It is important that they do not touch the bottom-board, for the moisture which condenses on the back of the hive flows over the bottom-board to the entrance, and these papers must be kept dry. A super filled with newspapers and shavings gives protection above. With this arrangement, practically all of the moisture is condensed on the ends of the hive where it can run off without doing any harm.

The Hoffman frame gives a double-walled end for the upper part of the brood-chamber, and the bees do not suffer seriously in this locality from the unprotected hive ends. In very cold weather, little icicles will form at the entrance; but I have examined the packing at various times during the winter, and have always found it dry. I have followed this method for the last four years with very good results. TAKING THE TEMPERATURE OF THE HIVE.

This winter I placed an 8x10 glass half an inch above the frames of a ten-frame hive packed as above, and beneath this glass a thermometer lay on top of the frames. By pulling aside the super packing, the thermometer could be read through the glass. After a long cold spell in January the outside temperature dropped to 19 below zero. At the same time the thermometer above the frames registered 32 degrees. That afternoon the outside temperature rose to 5 below, and the hive thermometer read 39. I have watched this thermometer all winter, and a zero temperature will send it down to 36 or 38 in the early morning, but during the day

the bees raise the temperature to 42 or higher, and move about freely on the top-bars, the entire cluster being below the top-bars. On days when it is warm enough for the bees to fly, the hive thermometer registers about 70.

With this difference in temperature between the outside atmosphere and the air above the top-bars of a hive I consider top protection almost a necessity, and protection on the sides or ends a decided advantage as long as the hive can be kept dry.

A piece of six-inch board with two V-shaped notches cut in the under side, leaned against the front of the hive, and fastened with a small nail, gives good protection from cold winds and sifting snow.

Topeka, Kan.

[This is virtually double-walled wintering. It amounts to the same thing as a brood-nest covered with a good many thicknesses of paper, with this difference: The paper is *inside* rather than outside of the hive. Right here there may be an advantage.]

With regard to the question of taking temperature, see answer to Mr. Ben B. Edgerton in this issue.

The matter of upward ventilation or sealed cover and ventilation only from the entrance is a mooted question. For very cold climates we generally consider that upward ventilation plus entrance ventilation gives better results than a sealed cover and entrance ventilation only. In the milder climates many prefer the last named. We have had excellent results with it in our locality, taking one year with another.—ED.]

WINTERING IN A DOUBLE-STORY HIVE PACKED IN LEAVES

Importance of so Placing the Stores, that They will be Available to the Bees

BY F. H. CYRENIUS

Much has been said about the necessity of using large frames to accomplish satisfactory results when wintering bees out of doors. It is a well-known fact to the observing beekeeper that bees during very cold weather do not shift their cluster from side to side, but will consume all the honey in the combs containing the cluster, and will then starve with plenty of honey on each side of them. Thousands of colonies starve in this way.

This condition could be remedied if this honey at the sides were arranged directly

over the cluster. In order to accomplish this plan most easily, remove the two outside combs of honey on each side, and put in their place empty or partly filled frames. This leaves very little honey in the brood-chamber, but nearly as much as the bees would have consumed under the conditions given above.

In an upper chamber place the four frames of honey in the center of the chamber, filling each side either with partially filled or with empty combs, as one may happen to have on hand.

For the eight-frame hive I would use about five frames of solid honey, for the ten-frame hive, six. This amount ought to carry the bees until another year's honey comes in. This plan has settled for me the question of deep frames, of cluster room, and of starvation.

The protection used is, first, a paper wrapping; then a box that is a little larger than the hive is set down over the hive like a deep cover. The box should be deep enough to come down partially over the lower hive. This box, before being placed on the hive, should be provided with about two inches of packed leaves or fine straw. I prefer leaves. Fill the box about three-fourths full of leaves; level them nicely, and put a follower on them. By stepping on the follower the leaves will pack down sufficiently so that they will remain in place while the box is turned open side down on the hive. Place the hive cover over all and weigh down with a good-sized stone.

Those colonies which were wintered out of doors by the method just described came out in perfect condition—even better than those in the cellar. I had some fear of moisture accumulating in the leaves; but three winters have shown that it does not.

Oswego, N. Y., April 13.

[As our correspondent says, it is very important that the stores be promptly placed with reference to the cluster in the hive. In our locality our bees will make the proper disposition of them if they are left alone; that is to say, they will form a winter nest in the front part of the hive just above the entrance, and two inches or more below the honey. At least that is the rule that has exceptions. In the Langstroth hive, as the stores are consumed, the bees move upward and then backward.

We would doubt, however, the advisability of placing stores in two stories, as here recommended, for *all* localities. It is interfering with nature, even though it is an

effort to imitate it by placing the stores above; but the tendency will be for the bees in some cases, at least, to go up into this upper story; and if they should consume all the stores there, they might be left high and dry. The four frames of honey in the upper chamber might be enough, but in our locality we should be afraid that bees would locate in this upper part, eat away the stores, leaving a considerable quantity in the lower hive which they would not get.

Much depends upon the colony. Some bees will locate in the top part of the hive and some in the bottom part, where two stories are given. While our correspondent might be able to arrange the stores properly, the average beginner would complicate matters, we fear.—Ed.]

PACKING BEES ON THEIR SUMMER STANDS

Providing a Passageway Above the Frames

BY C. A. BUNCH

It seems to be an established fact that, to pack bees on their summer stands with upper ventilation, is by far the safest plan for the beginner, even though the packing does get wet from the breath of the bees.

Having had from 60 to 80 colonies of bees packed on their summer stands each winter for the last seven or eight seasons, I find that, in order to winter bees successfully without upward ventilation, it is well to allow them to cross above the frames at will. This is possible if a small $\frac{3}{8}$ -inch stick is placed across the frames before the board is laid on, with plenty of good packing above, well pressed down. If this is properly done it is impossible for frost to gather above the bees, for they will keep the board above them dry and warm. The consequence is that the bees will not be affected by the cold, and a considerable amount of stores will be saved thereby for use when rapid brood-rearing begins in the spring. But until toward spring, in the climate that we have in Indiana, the entrance must be about $\frac{3}{8}$ by 8 or 9 inches, both for ventilation and to keep the hive dry.

Later in the season the entrance is made smaller in order to allow brood-rearing; but if a sleet should chase the front of the hive so as to cut off ventilation I pour some hot water along the front of the hives for the purpose of melting the ice.

Lakeville, Ind.



FIG. 1.—Home of Geo. H. Kirkpatrick, Rapid City, Mich., "built by the bees."

CELLAR WINTERING

Size and Construction of Cellars

BY G. H. KIRKPATRICK.

Although I established my first out-apiary over 25 years ago, I have always wintered my bees in cellars, of which I now have three. My experience is that the size of the cellar to be used depends upon the number of colonies to be wintered. Each colony must have not less than 15 cubic feet. In this northern climate our soil is generally sandy and the cellars dry.

I place my bees in the cellars, usually, about the first to the tenth of November. It sometimes happens that we have a few

inches of snow at this date; and then when moving the bees from their summer stands to the cellar I use a pair of light hand sleighs, seven feet in length, Fig. 2. We begin at the further end of the yard from the cellar; get the sleighs in place, then gently press a little snow along the entrance of the first hive to close it. The cover is then removed; a quilt is made from two layers of carpet, and placed over the top of the hive. In this way five colonies are prepared and set on the sleighs, and drawn to the cellar and placed as shown in Fig. 3.

The windows are fitted with wire screen, and are left open to admit a free circulation of air until settled cold weather comes, when they are packed with straw which is

left until about March 15. After this the windows are left open except on warm days, when they are darkened. Should there be no snow at the time of setting the bees in the cellar I use a wheelbarrow instead of a sleigh.

I have one cellar in heavy clay soil, and

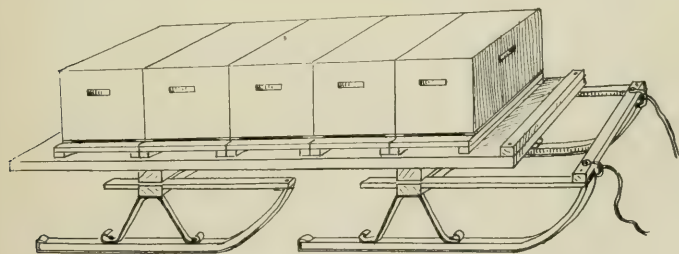


FIG. 2.—Hand sled used in carrying bees into the cellars.



FIG. 3.—How the hives are stacked up in the cellar.

this one is damp, so I use a tray built of lumber sized to $\frac{1}{2} \times 3$ inches. From this stock I make rims just a trifle larger than the hive-body and put bottoms of burlap on them. These trays are then filled with kiln-dried planer shavings, and placed over the hives on removing the cover, as in Fig. 4. The shavings absorb the moisture and retain the heat, so that the bees winter well. The temperature should be a little higher than that of a dry cellar. I prefer a temperature of 43 to 45 degrees in a dry cellar, and 48 to 50 in a damp one.

It is my practice to *carry* the bees from the cellar in the spring to avoid the jar that they would receive if wheeled on a barrow. If the bees have wintered perfectly, and are quiet, it is my belief that

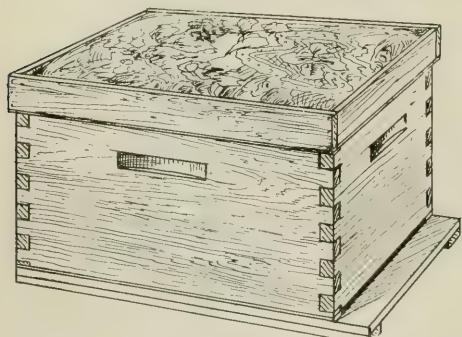


FIG. 4.—Trays of dry shavings set over the hives in the damp cellar.

they should be left in the cellar until they can gather pollen. In this climate bees gather the first pollen about April 10th to the 15th. I usually carry the bees out on a cool afternoon when the indications are that the following day will be fair. On the night previous to setting the bees out, I open all doors and windows. The cool air has the desired effect of causing the bees to cluster closely. To prevent them from flying while being moved from the cellar I provide a few strips of cotton cloth; dip them in water, and gently tuck them into the entrances, removing them as soon as the hives are located. At the time of placing the bees on their summer stands I leave the quilts on, placing a piece of tarred felt over each one, large enough to project one inch all around. Over this felt I put the regular cover.

Rapid City, Mich.

PROPER WAY OF MANIPULATING AND WINTERING BEES OUTDOORS

BY G. C. GREINER.

While giving a description of the cover-picture of *GLEANINGS*, Dec. 15, 1911, the editor refers to a former article from my pen, in which I described the management of outdoor wintering as I practice it. I disclaim any semblance of my management and outfit to the arrangement which this cover-picture would suggest, for it is extremely faulty.

It is not an easy matter to shift bees from one place in the apiary to another, without causing more or less confusion, mixing, and mingling of bees of different colonies, which is always accompanied by some loss of bees. It requires the most careful application of what years of observation have taught me to shift my bees from their summer position to their winter quarters with positively no confusion nor the loss of a single bee. We can change the appearance of a bee home with endless variations in color, shape, material, etc., without any detrimental effect to the bees except, perhaps, a little hesitation for a few times on entering when coming home, if the location is not changed; or we can change their location very gradually, not more than the width of the hive, every three or four days (but these must be *flying* days), and cause no inconvenience to the bees, if the aspect of the home remains the same; but change both at the same time and an undesirable disturbance with loss of bees will be the result. Any manipulation that produces this state of affairs is faulty.



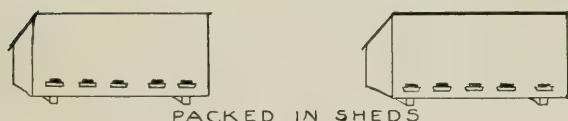
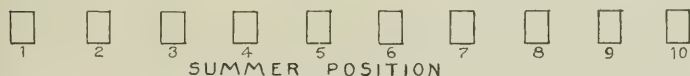
G. C. Greiner's apiary in winter quarters. The hives are gradually moved together in groups, and then the sheds set up over them.

The editor says: "It was his practice, however, to move the bees from the several stands in the bee-yard to a new position under the shed." This gives a wrong impression. Practically I never move my bees under nor into the shed; but I move the shed around the bees. These sheds are made in sections for that purpose. Sides, ends, bottoms, and roofs are adjustable, and held together by square-headed wood screws. The only moving or shifting of bees I ever do is done early in the season, right after the last honey-flow, and very gradually, and not, as the editor says, "late in the season and all at once." That would surely cause a general mixup on the first flying day after the operation.

To explain fully the proper way of moving bees successfully—that is, without any loss of bees—I refer the reader to the accompanying drawing. The upper row shows ten colonies as I work them for extracted honey during the season. They are equally spaced with two feet in the clear between the hives.

The second row shows the same hives after the first shift is made. The four hives, 2, 4, 7, 9, are moved their width toward the center hives 3 and 8. After two or three days (and, of course, I mean flying days), when these shifted colonies have again become accustomed to their new location, the end hives of each section of five, represented by the figures 1, 5, 6, 10, may then be slightly moved toward their respective centers. Under no consideration should these latter be shifted at the same time when the first shift, Fig. 2, is made. That would bring their new stand too near the stands of those just moved, so that more or less mixing up would be encouraged.

The third row shows the ten colonies in position ready for the sheds. If carefully managed, and if the shifting has been done according to the hints



here given, they should arrive at these places without the loss of a single bee.

As I said before, I begin preparations for the winter arrangement as early as the season's work will permit, aiming to give the bees one or two weeks of open flying weather before they are housed for the winter. Then when the sheds are brought into requisition, every colony remains on the identical spot it occupied before the transformation took place. Although the appearance of their homes is completely changed, they are so well acquainted with their location that their first flight from the sheds is as normal as any flight during a honey-flow from their summer position.

The photograph shows the same bees in winter quarters, of which a summer view was given on page 430, July 15, 1911.

It will be noticed that my bees have no protection in the line of windbreaks outside of the sheds; but I am surrounded by orchards, groves, and shade-trees that

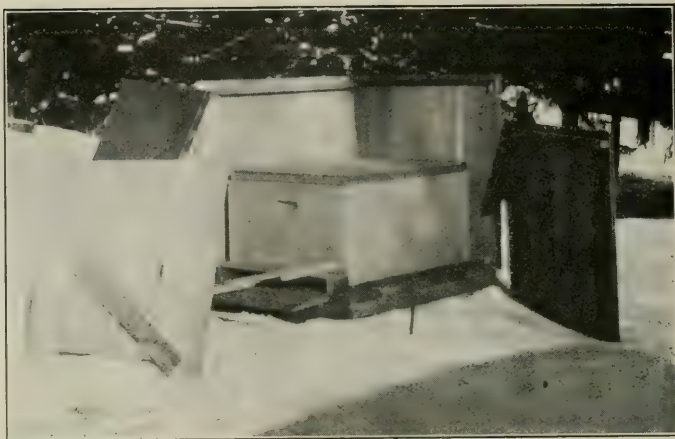


FIG. 1.—Detail of the France outside winter case for single-walled hives.

form at least a partial protection against our northern climate. However, I have great confidence in my sheds. They are positively water and frost proof, allowing from two to three inches of chaff packing at the sides, and from six to eight on top over the sealed cover. I can not say that I never lose *any* bees in these sheds. I do lose more than I wish I did; but I never have frosty or moldy combs, except as I find them occasionally in depopulated hives.

It will be noticed that the summer stands are placed on the roofs of the sheds. This is done to keep the ground picked up, to furnish an out-of-the-way place for storing, and as a precaution to prevent the roofs from blowing off. The latter are in no way fastened to the side wall, being held in place only by close-fitting cleats.

On the morning of Jan. 5, 1912, with the thermometer at 3 below zero, I examined a few of my sheds, with gratifying results. By simply raising the roofs and pushing my hand through the chaff until it came in flat contact with the hive-cover, I found the temperature of the latter far enough above the freezing-point to prevent any formation of ice on



FIG. 2.—The winter case in use.



FIG. 3.—The France quadruple double-walled hive.

their under side. In fact, the sensation was surprising. A decided degree of heat could be noticed.

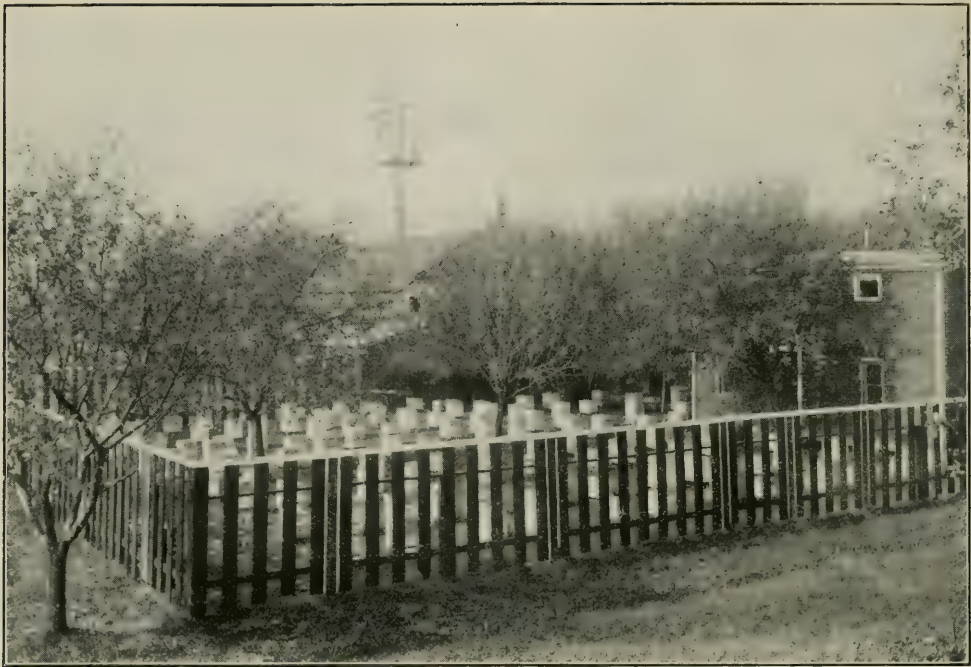
LaSalle, N. Y.

[We gladly accept your correction as to your method of moving your bees. The plan you have outlined in your diagram is perfectly feasible. The plan of winter-

ing bees in tenement hives is coming somewhat in favor in Canada. In fact, during the last severe winter where they had bees in such hives, they came through in remarkably good condition. The tenement-hive scheme, while it apparently involves the moving of a large number of hives a little at a time, effects an economy in winter protection over the double-walled in-



FIG. 4.—Section of home yard; some of the hives appear tilted, but such is not the case, as the snow is drifted more in some places than in others.



Chrysler's fence having loose boards that are removed during the summer to give more ventilation.

dividual hive. Moreover, it gives a greater protection than any single hive could afford, because the bees of the several hives contribute their individual heat to the entire bunch. For very cold climates, the arrangement here described, or the one by Mr. France next described, or yet the one used by Mr. R. F. Holtermann, as shown in *GLEANINGS* for Nov. 15 last, may be used to very good advantage. It is a good time now to make up the tenement-hive panels, and thus be ready when cold weather comes.

Mr. Cavanagh in his article in this issue (page 556) says that in an arrangement that he used similar to this, the strong colonies drew from the weak. It would seem as if there might be a difficulty right here. How is it with you?—Ed.]

a chance to have a small flight—some of the time when it is thirty to forty below zero. If a colony in a single-walled hive is left out exposed to all these changes it is almost sure to perish.

Our single cases have two inches of space around the sides, and about a foot of space above the hive, all of which is packed either with leaves or fine straw. Over the top of the hive is placed a cap having about an inch space underneath, so that the bees can secure honey in outside combs with ease. In putting this together, notice that the sides are held together by pins at each corner. The entrance is provided with an entrance-block and storm-door to keep out the driving snows and winds. Over all is placed a large cover to keep both packing and hive perfectly dry. This I find to be a very practical and successful winter case for single-walled hives.

The larger hives hold four colonies each, with an entrance at each corner. This hive is used throughout the year, as it is double-walled and packed with chaff. It is divided into four equal parts, each colony by itself, and can have supers and standard Langstroth frames according to the requirements of the individual colonies. Over the honey-boards of all the colonies there is room for six to ten inches of leaves or

WINTER CASES FOR ONE OR FOUR HIVES

The France Quadruple Hive for Wintering

BY FRANK F. FRANCE.

Here in the North, where we have cold piercing winds, lots of snow and atmospheric changes, we must find some way to protect our single-walled hives. Nearly every winter we have from five to eight weeks of cold weather before the bees have

fine straw, and a large cover-roof is placed on top.

As long as we need our extra-heavy clothing or overcoats in the spring the hives also need "overcoats." A heavy building-paper or a thick manila paraffined paper of a light color is best to use in wrapping the hives that were wintered in a cellar. The paper should be folded so as to cover the entire hive except the entrance, so that no drafts can get in. If tied with a string instead of tacking on, it can be used over and over every spring. Black building-paper should not be used, as many times on a cold day, even when the sun does shine, this paper will absorb heat and cause the bees to take a little flight, and, of course, be chilled to death.

Many times in the spring when the temperature is up to forty or more the bees come out and have a fine fly, and at the same time there may be considerable snow on the ground. Here is where I notice that many bees perish; for if they once alight on the snow they become chilled so they can not reach the hive again. I use a fine remedy for this; and that is, simply to scatter straw in front and around the hives

on the snow, so that, if they should alight on the straw, they would not be chilled, but can rest and return to the hive.

If colonies have good young queens in the fall, with more honey than enough to winter on, and are well protected with winter cases, there will be earlier brood-rearing and stronger colonies in time for the honey-flow the following season.

Platteville, Wis.

[Mr. Frank F. France is a son of N. E. France, General Manager of the National Beekeepers' Association for many years, and grandson of the late Edwin France, who was a frequent and valued contributor to this journal in the interval between twenty and thirty years ago. The Frances have always been largely engaged in bee culture; and their quadruple hives, or what some call tenement hives, have been used by them for a good many years. They are no experiment, because they have stood the test of time. The tenement-hive idea seems to be coming more and more to the front—especially in colder climates—so cold that cellar wintering prevails. See editorial.—Ed.]



Snow in abundance in Nebraska—an unusual sight.

A WINTER FENCE HAVING REMOVABLE BOARDS FOR SUMMER

BY W. A. CHRYSLER.

The illustration shows my home apiary with a winter protection and summer fence. The yard is about 65 or 70 feet square, and holds 130 colonies. The fence is made of 7-ft. by 8-in. cull, short lengths, of various kinds of lumber, dressed both sides, and painted to prevent warping, decay, and also for appearance.

The top rim of the fence is composed of narrow strips nailed on each side of the top ends of the stationary boards to keep them straight and to hold the loose boards in place in winter. The loose boards that are put in place for winter have cleats nailed on them to support them on the lower scantling of the fence, and a button just above it to hold it tightly in place. Buttons are also nailed on each edge. In the photo the removable boards that come opposite posts in the fence have been left as in winter.

Chatham, Ont., Jan. 30.

[We are beginning to believe that an open or slatted fence is better than a solid fence for a windbreak around a beeyard. The force of a wintry blast is broken off more by an open fence or shrubbery than by a solid windbreak against which the wind glances upward and then downward, striking the hives. The railroad companies have evidently discovered the same fact when they make open fences to keep the snow off from their tracks.—Ed.]

SWEET-CLOVER HONEY GRANULATES IN THE HIVES BEFORE SPRING

BY LOUIS MACEY.

Our winters here in Ontario are generally dry and sunny, and hoar frost is very unusual. We seldom have much snow, and a sled is an uncommon sight. About 95 per cent of all the bees here are wintered outdoors. I have been packing part of mine every winter for four years and all have wintered equally well with only one or two per cent of loss.

We generally have a warm sunny day nearly every week; and the unpacked bees will fly while very often the others will not. I took chances too much last year and got caught. As the photo shows, none of the hives are packed. During the three weeks of zero, six colonies died and a good many more were badly weakened.

The honey flow of 1911 was good here,

and hives were heavy with honey; but it stayed too cold for the bees to "move over."

I have much trouble every year with our sweet-clover and alfalfa honey granulating solid in the hives. The bees kick out lots of it (in dry hard granules) nearly every spring. I had one colony starve in early March one year. With solid slabs of granulated honey some cells were uncapped and partly emptied, and all were dry and hard. I have reported this before, but never received any help. Is there any way to overcome or alleviate this condition? Of course, it is understood the critical time with this granulated honey is in cold, cloudy, windy spells in late winter and spring, when the bees can't carry water, and when the hives should not be opened.

North Platte, Neb.

[The only way to remedy the condition of candied honey in your hive, thus causing your bees to starve, would be to extract all this honey early in the fall and feed sugar syrup instead. You would gain by this, for you could take away the honey that would bring a larger price than the cost of your sugar. Of course, you would be out your time, but you would be able to save your bees.—Ed.]

SOME EXPERIENCE IN OUTDOOR WINTERING IN INDIANA

All Plans for Packing Hives in Rows Under Tarred Felt Abandoned for the Large Winter Case Holding Four Hives

BY F. B. CAVANAGH.

I well remember reading of the failures and successes in wintering bees, graphically described by the late W. Z. Hutchinson. I confess that some of the schemes he tried seemed foolish at that time; but my past four years of outdoor wintering has cured me of all conceit, so that I willingly confess "I know nothing;" and in order to make a complete confession I will tell of some of the foolish stunts I tried at outdoor wintering in Indiana; also of the wise stunts which did or did not "pan out."

Several years ago Oliver Foster described in the *Review* a method of wintering four to six hives back to back and covered with straw and earth—a board leaned against the fronts, also covered with straw and earth, forming a dark anteroom in front of the regular entrances. Near the top of the hive, a color entrance was cut for flight. Now, Colorado has a very dry climate, while at Hebron the atmosphere is usually moist. We had very cold weather

in the winter of 1909, and the results were very unsatisfactory, for the dirt frozen solid not only left the bees virtually packed in ice, but there was little chance of getting rid of surplus moisture, so that many colonies died of dysentery on sealed combs of honey.

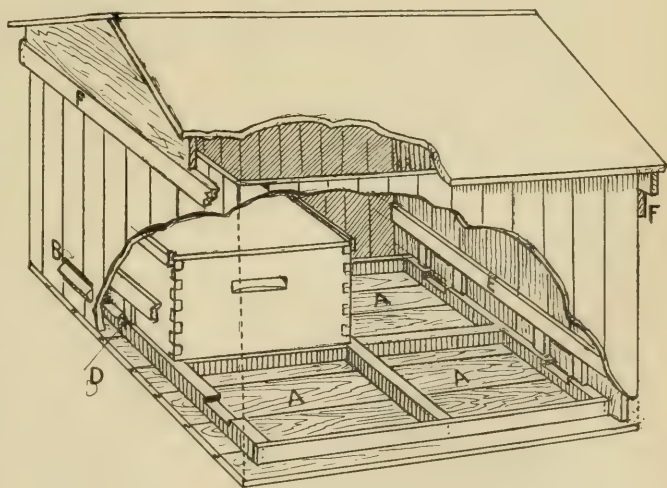
Most of the bees, however, were packed above ground in clamps of six or eight colonies each, with the small entrances facing opposite, and a deep super of leaves on top of each hive. Leaves were piled above and packed between; and a tight roof of tar felt covered the whole. A pole or board for a ridge gave the proper slant to the covers, and tar felt was brought clear to the ground on all sides, and banked with sods to hold it in place, the entrances being cut through the felt. The results were fair to poor, the principal difficulties being that, first, the heat absorbed by the felt caused the bees to fly too much and get lost on cool days; second, the strong colonies drew the bees from the weaker ones so that the strong grew stronger and the weak dwindled out. The bees seemed to think that all of the big black thing was their own hive.

I have also tried packing in single long rows; in fact, I've tried dozens of variations such as standing hives on end, packing several hives deep, etc. The first winter, that of 1910, proved quite a success for the long-row system. Three long strips of felt for back, top, and front of the closely packed row covered the whole, including supers packed with leaves. The winter had been steadily cold, and the spring was cloudy much of the time. Encouraged by my success, I repeated the method during the open variable winter of 1910, and I lost altogether too many bees. It seems that the heat of the felt must have caused the bees to fly too much on days which were bright but too cool. The strong colonies drew unmercifully from the weak, and many a colony did I find reduced to a handful of bees, with the queen on a generous patch of brood, which showed what I might have had if the bees had stayed in their proper hives. Of course I saved a great number of weak

colonies by the Alexander plan by putting them above the strong colonies over an excluder and drawing brood from below where necessary. I had failed during the three years to winter bees as I knew they should winter; my queens were not at fault. The stores had been carefully arranged, and I had worked so hard, and fixed them up so nicely, to no avail.

Thinking it all over I decided to abandon tarred felt and use a better packing than leaves above, for I realized that my bees had not wintered as they should winter for three years. That I must be prepared for a severe cold or mild and variable winter was evident.

Forthwith last autumn I left the majority of the hives two-story with most of the stores above. A deep super was packed with clover chaff, *not leaves*, and the cover put on. The entrances ranged from $\frac{3}{8} \times 6$ to full width; and in some cases $\frac{7}{8}$ by the width of the hive was left. The results seemed in favor of a sealed cover over the bees. A well-propolized quilt came next best, and a loose burlap was the poorest. I prefer $\frac{3}{8}$ by full-width entrance for two-story single-wall hives. The $\frac{7}{8}$ -inch entrances were not so bad, except that the mice got in where they were not screened. We had severe weather, prolonged cold, with the thermometer often 16 to 20 below



The Cavanagh tenement winter case.

zero. Some of the outdoor colonies packed as above showed signs of dysentery, it is true; but many wintered perfectly. The importance of good packing should be impressed; as where hay, leaves, etc., were used in place of clover chaff or similar

packing the loss was heavy. Bees had to be kept warm and dry above by the use of proper packing and a tight board or well-propolized quilt.

Out of the relics of my Michigan experience I revived the Bartlett packing-case and made some improvement in it. The colonies wintered perfectly. Few stores were consumed and the bees were quiet and bright, instead of being filled by eating heavily. Moreover, the honey was clean and dry. The bees can not clog the entrances, and they will not be tempted to fly on cool bright days, nor will they need a flight. Neither mice, cows, nor hogs can do any damage. These cases will cost about \$4.00 or \$5.00 each, or from \$1.00 to \$1.25 per hive; but the saving in stores and bee life pays for them in a season or two. Besides, they made an excellent place to store packing material in the summer.

Strong colonies of young bees having good store room above the frames to pass freely will winter if there is heavy packing above; but it costs honey to do it, as well as bee life in such a severe winter as the past. Therefore I have resolved to pack all colonies generously hereafter, not only above but around the sides, and to use a sealed board or a propolized quilt with space above the frames. The entrance will be $\frac{3}{8}$, and liberal in width; and most of the colonies will be in two stories; and I intend to winter the greater share of my colonies in packing-cases such as I will now describe.

The illustration shows a perspective view of the winter case with a side and end cut away to reveal the floor plan. A framework of 2x4's crosswise, and 1x4's endwise on edge forms a four-inch space for dead bees. It will be apparent that the regular bottom-boards are omitted, as the hives rest directly on the framework. The four hives are packed closely except for one inch allowed between ends on the middle 2x4, which makes packing somewhat easier.

The entrance construction is quite clear. The bees, in leaving the case, must pass through the entrance on the 2x4; thence upward to the entrance in the end of the case. From limited experience I am inclined to believe this a good feature, both in breaking winds and shading from bright sunlight. The end cleats are on opposite sides—one for the cover to slide on, and one for the hive to rest against and hold the packing away from the entrance.

The side packing comes clear to the floor, and may be any thickness desired. Ours

allow three inches on sides, one inch on ends above the cleat, and ten or twelve inches above. The case is made of $\frac{7}{8}$ -inch hemlock, shiplap, with the roof covered with prepared roofing. The covers have a narrow cleat on edge which telescopes over the case, making it absolutely mouse-proof.

The bottom is placed in position, then the hives are set on it; and, lastly, the rest of the case is set up and the packing put in. This is not a small item in favor of this construction over the cases into which the hives have to be lifted.

Hebron, Ind.

[This winter case is very similar to the one used by R. F. Holtermann with such satisfaction last winter and the winter before. See GLEANINGS for Nov. 15 of last year. Other Canadians, including our special correspondent, J. L. Byer are using it, and more, we understand, propose to adopt it. See articles by Mr. Greiner and Mr. France on page 550 and page 554 of this issue.]

We note that Mr. Greiner and Mr. Cavanagh seem to prefer sealed covers. Others prefer upward ventilation. Who is right? See editorial.—ED.]

HOW TO TAKE THE TEMPERATURE OF A HIVE

The Varying Rates Between the Outside and Inside Temperature of a Hive

BY BEN B. EDGERTON

I tried the temperatures of hives somewhat last year and the year before, and I found that one must be careful about the conditions, especially the lag in the temperature. By "lag" is meant the delay that a heavily covered body has in reaching outside temperature. Six inches of dirt and a foot of clover chaff ordinarily cause enough lag in temperature to save our potatoes from freezing. On this account it is hardly correct to take the temperature of a heavily covered hive after only about twenty-four hours of zero weather following a warm spell.

My bees are protected by a deep cushion over the sealed covers, most of the colonies being in four-colony boxes. I think it is a little more accurate to slip the thermometer under the cushion than to put the instrument actually inside the top of the hive. If the slight disturbance raises the temperature inside, the heat hardly has time to penetrate the $\frac{3}{8}$ -inch super cover before the thermometer registers. If the

instrument were inside it might register too high in some cases.

Winter before last, after an outside temperature of 26 degrees for two weeks, and last winter after nine days of zero, I found the tendency of the thermometer under the cushion was to register around 45 or 46 degrees in each case, the lowest temperature I noticed being 38 degrees. Two days later, the outside temperature being 14 degrees, I found, out of five colonies, two that registered 45 degrees and 44 degrees respectively; two 37 degrees and 34 degrees, and one only 28 degrees. Less than two weeks later I found this latter colony dead. The bees starved from being unable to reach the stores. The colony was surprisingly large considering the fate that overtook them, and they were protected fairly well.

Of course it is not safe to make any general conclusion from just a few trials; but until we learn more I suggest this: That 45 degrees is about the normal temperature in the upper part of the hive. If it is much warmer than this, it may be an indication that something is disturbing the bees. If much colder, it is a sign that the colony is too weak for the frames it occupies, or else that the wind hits the hive too hard. If the temperature is below freezing, the bees are in bad shape.

With reference to a well-protected colony keeping the temperature in their hive only one or two degrees above the outside air, I will say that, in some of the hives, the temperature was 43 or 42 degrees above the outside air on a day when it was 4 degrees above zero near noon, following a morning when it was 16 degrees below. Even the poor starving colony that was making its last stand against death kept its hive about 14 degrees above the outside air. Hicksville, Ohio.

[The point is well taken. The reader will see that we took this into account—that is, "lag" of temperature of a hive, when we reported temperature readings taken last winter. See page 78, Feb. 1, and page 125 for March 1.—ED.]

it be easy of solution in our changeable and uncertain New England climate. During a mild or average winter, outdoor colonies fare best; but in the severe winters we sometimes have, any reasonably good cellar would doubtless give better results.

The essential feature of this method is a separate case for each hive, of sufficient size to allow four inches of packing on all four sides and twelve inches on top. There is no protection on the bottom. These cases are made of rough lumber one inch thick, with a cover of the same material, that telescopes down two inches all around. It is covered with tarred roofing paper, and there is sufficient slope to carry off all water. Two boards, just wide enough to allow the empty case to be set down over the hive with the cover off, are nailed on the bottom of each side. A loose board of the proper width is used back of the hive to prevent the packing from falling through, and the front board is three inches above the entrance. The super covers are sealed down tight, and no provision is made for ventilation of any kind anywhere except at the entrance, which is the regular $\frac{3}{8}$ by 6 furnished with the hives. I have never been able to scrape out more than a cupful of dead bees during any winter from one colony, and there have been two occasions when I was satisfied that the bees came out stronger in the spring than when closed up in the fall.

I like to feed as late as is consistent with good results, so about Oct. 1 the colonies are looked over, and fed or united as occasion demands. I make sure that they are all strong, and that the queen appears vigorous and lively.

About Nov. 1 the hives are set on winter stands 14 inches high, to keep them out of the snow, and the winter cases are put on and packed tight with hay or straw. During the winter, if the thermometer reaches 46 in the shade, and the sun is shining, the bees come out and fly. Some of them fall in the snow and are lost, but never enough to do any harm, as they are mostly old bees.

But it is in the spring that the value of this method is most noticeable. As soon as the snow is gone, and it is certain that the bees will fly about every day, these winter cases are taken off and the hives set down on their summer stands, which are $3\frac{1}{2}$ inches high. These summer stands are leveled with a spirit-level from front to back, sidewise and diagonally, so that all foundation will hang straight, and there are not apt to be any cold corners in supers. As the hives are changed they

WINTERING OUTDOORS IN SINGLE-HIVE WINTER CASES

BY P. W. RICHARDSON

The method of outdoor wintering which I have followed for the past four winters has been so uniformly successful that I thought perhaps there might be suggestions by which others might profit. The wintering problem is not solved, nor will

are looked over and given clean bottom-boards, follower-boards, and frames of honey, if short of stores. At this time it is not unusual for some of the frames to look as if there had been water on the top-bars during the winter, but I do not regard a little water as a calamity, for brood-rearing probably begins late in January or early in February, and if the bees do not use this water for brood-rearing, where do they get it?

The hives are then wrapped in newspapers, a small chaff cushion laid on top of the sealed cover, and a telescope K cover pushed down over all. They are left in this way until settled warm weather. The entrance is usually enlarged to $\frac{3}{8}$ by the width of the hive soon after setting on the summer stands. Instead of being troubled with spring dwindling, the trouble is just the other way, for a good deal of attention is required for a time to control swarming and to prevent increase.

Mast Yard, N. H., Jan. 17.

PLENTY OF PACKING AND A CONTRACTED ENTRANCE

As Opposed to Tarred Paper Winter Cases and a Large Entrance; Wintering in Observation Hives

BY E. C. BRITTON

I read with interest the article by Mr. Arthur C. Miller on hive protection, Feb. 1, p. 73, also the other side of the question by Mr. R. F. Holtermann, p. 74, and Mr. J. L. Byer, p. 76, and as I live 28 miles from Providence, R. I., the home of Mr. Miller, and have made a number of experiments with observatory hives having glass sides, rear and top, I wish to add a word in favor of the best possible protection for our bees.

We have from twenty to thirty hives which we winter out of doors. They are protected by boards on two sides, and by a roof which is waterproof.

We pack these hives all around to a thickness of between eight and twelve inches with pine needles, leaves, or hay, and contract the entrance to $\frac{1}{4} \times 5$ inches.

Last winter I uncovered one of them in order to see how the bees were getting along. They looked well; the glass was clear, for they had an observatory cover and feeder combined, and were lively, and their number seemed the same as when they went into winter quarters. I left off the protection, wishing to see what would happen. In a short time moisture began to gather on the glass, and great drops of water hung ready to fall on the bees and

comb. I put on a heavy black tar paper, folded so as to fit closely over the hive, and awaited the result.

On removing this cover, a few hours later, I found that the moisture was still there. I again put on the same paper cover and kept it on the rest of the season, and the colony went to pieces and was no good that year. I unpacked another hive at the same time, which I treated by the other method. As soon as the moisture appeared I covered the hive again with leaves, hay, or pine needles, which ever was handy at the time, to a depth of a foot on the sides, top, and bottom. Each time that I inspected the hive after the extra protection was given, it was in perfect condition. I have frequently examined hives in different near-by towns; and when additional protection has been necessary, and has been given, the colonies have always been benefited.

The hives (which are all observatory), from which we get the most honey are located in the tower and attic of our houses the entire year. The entrances are so arranged that the bees can have free access to the outer air at all times, but can not enter the room. In the tower there are five hives where the temperature remains at about 50 degrees the whole winter, and we get from one hundred to two hundred pounds of honey from each colony every year. We do not have to give any extra protection to these hives during the winter. In the attic we have three colonies where the temperature at times goes down to freezing.

Each hive is protected during the winter by a heavy woolen cover, tied firmly with a string. For five years the entire lot of hives of bees, both indoors and out, have wintered perfectly—no moisture, glass clear, and the bees quiet, and they have built up early and strong every spring. We get the most honey from the colonies indoors. Those outside we use for breeding.

Canton, Mass., Feb. 13.

The Lesser Wax-moth

I have some very nice honey that I have taken from my bees this season, but have discovered that there is a miniature worm or moth that has made its way to some of the boxes. I should like to have your opinion as to how it should be cared for after it is taken from the hive.

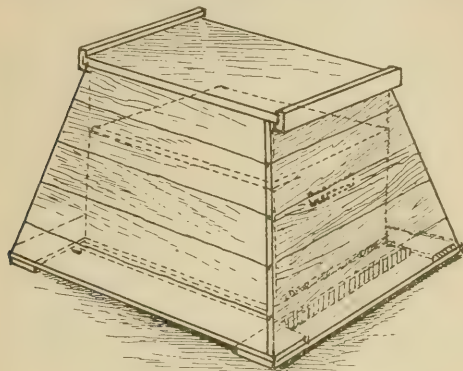
Thompsonstown, Pa. W. A. RUMBERGER.

[It is apparent from what you say that you have the lesser wax-moth in your honey. This should be fumigated with the fumes of sulphur in an enclosed room, or, perhaps better, use carbon bisulphide. This should be placed in a small dish above the supers where the honey is placed; and as it evaporates the fumes settle down through the honey and kill the pest. For particulars regarding the lesser wax-moths, see ABC and XYZ of Bee Culture, under head of Bee-moths.—ED.]

Heds of Grain from Different Fields

A Packing-case for Winter which Fits the Regular Hive-cover

Last year I used a winter case which is very inexpensive, as it does away with the usual extra cover and bottom-board. The box is six inches larger all around at the bottom edge than the hive, and tapers up to a point about a foot above the hive, where it is small enough to take the regular cover. If made any shallower it comes too close to the top edge of the hive and prevents pouring the packing around the hive. To close



the opening below I make a frame of six-inch stuff the same size inside as the outside of the hive. When ready to pack I slip the hive forward on its bottom about one inch, and then slip the frame down till it rests on the bottom at the front and back. The packing-box rests on this frame; and if the box is held in position until some of the packing is poured around the hive it will not move off its frame afterward.

If the box is made of half-inch matched lumber it will not leak; but if made of plain lumber it should be covered with tar felt.

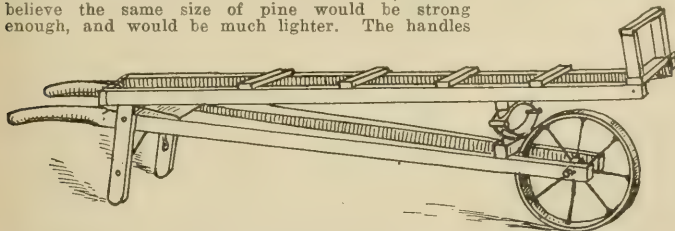
Palermo, Ont.

H. A. SMITH.

[This arrangement here shown will be satisfactory provided a full foot of packing is used on top, as shown in the drawing; otherwise there would be too little top protection.—Ed.]

An Extension Wheelbarrow in Use in the Apiary

The illustration shows my "bee automobile," which I made myself. It is long enough to hold five hives. Mine is made of 2x2 oak, but I believe the same size of pine would be strong enough, and would be much lighter. The handles



should be wide apart, as then it handles much easier.

For a spring I use one from a lumber wagon seat. It should be a good stiff one. This is very handy in putting bees in and out of the cellar, as it carries them very easily. It is also very handy in carrying empty supers to the yard, also in returning filled supers to the shop.

A. T. DOCKHAM.

Eagle Bend, Minn., May 14.

Sealed Covers Unsuccessful for Single-walled Hives During a Cold Winter

Colonies packed with sealed covers are wintering disastrously. But first of all let me tell you

how I packed them. I selected two colonies which heretofore had wintered almost perfectly with scarcely any mortality. They were exceedingly strong in bees and brood late in the fall, as I had fed them granulated-sugar syrup until late in September; and when I packed them the last week in September they had an abundance of sealed stores and plenty of young bees, and the queens (of current year's raising) were all right. I placed a super cover over the brood-chamber, and over this a full-depth hive-body filled with woolen rags, dry leaves, sawdust, and newspaper on top of all, and then the cover. Next I put several thicknesses of heavy cardboard around the hives and fastened it securely with tacks and string. I next reduced the entrance to 6 inches by $\frac{5}{8}$, and left them with my other colonies to winter over until spring. You will understand that I winter my colonies out of doors on their summer stands.

The first two weeks in January we had zero weather, and one morning 11 below, with considerable snow. When the cold had abated somewhat I took a look at my colonies in order to see how they stood the intense cold, and compared the number of dead bees in each. I raked over a quart of dead bees out of each hive one evening, and the following day just about as many. At that rate of mortality, they would soon have been entirely depopulated, so I immediately removed the super cover, and, throwing a piece of woolen cloth over the brood-frames, I put back the supers and filled them with cork chips. I then looked to see how the other colonies fared, and was surprised to see very few dead bees on the bottom-boards. By means of a hooked wire I raked, on an average, only about 30 or 40 bees from each hive, and these were all packed with absorbents over the clusters. The entrances were of the same size—6 inches by $\frac{5}{8}$.

Since replacing the sealed covers of the two colonies in question with absorbent packing there has been practically no mortality, and therefore I think that sealed covers are not a success. Theoretically it sounds very well when it is claimed that the moisture in the hive collects on the sides and runs out of the entrance in the form of water. In zero weather it does not; and since the interior of the hive is but a few degrees warmer than the outside air it must necessarily collect just outside of the cluster, and overhead especially, since this warm moist air rises as a matter of course. It can not pass through the wood, so it collects there in the form of ice and frost. This icy covering is not conducive to good wintering.

I forgot to mention that these two hives were soaking wet inside, and the dead bees I raked out were saturated with water, and partially covered with ice and frost. It is very evident that the moisture from the bees congealed as fast as it emanated, and that the cluster was surely enveloped in an icy covering. Of course the conditions this year were abnormal and we had zero temperature for about two weeks without interruption, which in this locality is a rarity. I am fully convinced that sealed covers in severe winter localities are a failure, but in milder climates they may be very satisfactory. But for the best results in outdoor wintering nothing can compare with

absorbent packing. Two years ago the mortality in wintering in this locality exceeded 75 per cent, and one beekeeper near me lost 17 out of 18 colonies; but I had nine packed with porous packing over the cluster and lost not a single colony. No more sealed covers for me.

THE IMPORTANCE OF YOUNG BEES IN THE FALL.

I have found that a colony will winter perfectly, and be in the best possible shape in the spring, if brood-raising is encouraged until late in the fall. The hives will then be stocked with young bees, vigorous and active, which are the very life and backbone of the colony. My best colony, No. 2, has even now, Oct. 21, six frames of brood in all stages, the result of feeding about a pint of sugar syrup

every other day. Spring stimulation (which I think is a grave mistake) will be unnecessary, as the bees will have an abundance of stores, and young vigorous bees to convert these stores into brood just as soon as pollen is available, which, in this locality, is about Feb. 10. Pushing a colony to its utmost by feeding, after a winter's siege, in its somewhat weakened condition, is folly, and always ends in a protracted lull in brood-rearing just as soon as the feeding is stopped, and often in a supersede of good queens at a time when every day counts.

Cincinnati, Ohio, Feb. 6.

ALBIN PLATZ.

Sixty Cents' Worth of Syrup Saved Colonies that had Produced \$15 Worth of Honey

Publishing a weekly newspaper for a living has been my occupation for several years; but during this time I have had much experience with bees. I have been associated with those who have learned much about the business, and for several years I have kept from twenty-five to fifty colonies. While my bees have paid me well for the time I have given them, they have also given me the opportunity of learning the business—that is, what I know about it. Three years ago I began to make increase, and now I am running 175 colonies in one yard, and am giving about half of my time to them during May, June, and July.

In 1911, 110 colonies yielded over 7500 pounds of bulk comb honey, which was sold at 20 cts. a pound. I live in the sourwood belt of Piedmont, North Carolina, and it is no trouble to sell this fine honey at a good price. After the honey harvest was over, which was the last of July, I turned my attention to the newspaper and paid almost no attention to the bees until the time came to prepare them for winter. They had increased until there were 160 colonies in the yard. When I examined them in October I found them so poor that it was distressing. Strong colonies—that is, strong in bees—were almost entirely out of honey. Many had less than a pound. How to feed so many, and do it at once, was a problem. I had a local factory make fifty boxes the same size as a brood-frame, and as wide as three frames. Then I removed three brood-frames from each colony and gave one of these new boxes to each colony that I expected to feed at once. With boxes ready I would pour 300 pounds of water in the extractor and mix 300 pounds of granulated sugar with the water. Just before night I poured ten pounds of this sugar syrup into the feeders, and by the next afternoon it would all be taken and stored in the combs. After giving each colony 20 pounds of syrup I removed the feeders to other colonies and thus the whole yard was fed. It was with some fear that I waited to see how the bees would come out in the spring with so small a quantity of feed; but, to my delight, when they were examined the first of March of this year I had 155 colonies in what I consider fine condition, and every one of them will make strong honey-gatherers.

This experience has proven to me that there is no reason why any one should let bees die for want of food. Less than sixty cents' worth of feed saved strong colonies, some of which had given me as much as fifteen dollars' worth of honey; and why should I let them starve when sixty cents would save them?

BEE PARALYSIS.

Three years ago I noticed two or three colonies that failed to build up strong. I observed that the bees would crawl about the hive, and that they were unable to fly. I read up on all the bee diseases, and informed myself as best I could from all the literature I had. It was very evident that there was paralysis in my yard. That season I paid but little attention to the weak colonies, and they failed to build up. In the fall, several died. Last year the trouble showed itself in as many as a dozen colonies or more. Then I got busy. I bought a pound of sulphur and dusted a tablespoonful on the combs of brood and let it fall into the cells, regardless of the statement that this would kill all the unsealed larvae. In a week I could see an improvement in conditions. Mature bees would appear to be well, and a second treatment with sulphur stopped the old bees from crawling about. But after a few days I noticed that the queen's eggs failed to mature, and that

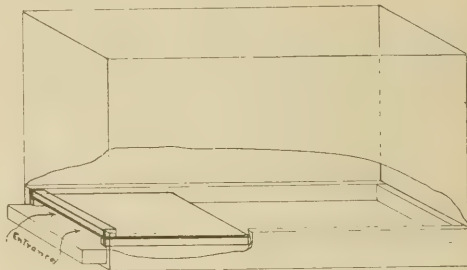
the brood was not in solid sheets. From the observation I made, I concluded that there was also trouble with the queen. Then I placed a young queen in every colony where the disease appeared. After the sulphur treatment and requeening, these sick colonies built up, and many of them made as much as a hundred pounds of surplus honey during July, and without any help from other colonies. And the beauty of it is, that this spring these same colonies that were in such bad condition last season are permanently cured, and among the best I have in the yard. This spring the trouble has shown itself in a few other colonies, and every one has yielded to this treatment.

In a few cases the colonies recovered slowly, and I gave two or three frames of hatching brood from a strong colony, and thus strengthened the working force, and all went well. My experience with as many as twenty colonies of sick bees has been that a tablespoonful of sulphur dusted over the combs, and a new queen, puts the colony "on its feet" again.

Mount Airy, N. C., June 21. J. E. JOHNSON.

A Cleated Thin Board Slid into the Entrance to Act as a Storm-door

While looking over back numbers of GLEANINGS I came across the description of a double hive-bottom for winter protection, by Joseph F. Rose, Jan. 15, 1908. I have a similar but much simpler device which can be applied to any hive having a drop bottom-board, without necessitating any change thereof. The advantages claimed for the double bottom-board were: Prevention of cold drafts; bees flying out on sunshiny but cold days; stoppage of



the entrance by dead bees or ice, and spring robbing; to which I would add, promotion of late and early brood-rearing. All these advantages go with what I designate a winter entrance-board, which is simply a thin wide board suitably cleated to preserve a bee-space above, and an entrance underneath when pushed into the usual $\frac{3}{8}$ -inch entrance opening between the bottom-board and hive-body.

I make these boards of red-cedar shingles (which come very wide), planing them to $\frac{1}{8}$ inch by hand. The top cleat across the front is $\frac{1}{4} \times \frac{1}{2}$ inch; the end cleats are $\frac{3}{8} \times \frac{1}{2}$ inch, all fastened with thin wire nails clinched. I use two different sizes, one 4 inches and the other 8 inches wide. The smaller one is put in when the nights begin to be frosty, and is replaced by the 8 when warm days are scarce. The 8 is left in place until the bees are seen fanning in the middle of a warm day in spring; then the 4 is substituted, and left until settled warm weather. These boards being put in place late in the season are not glued fast, and may be withdrawn at any time to rake out dead bees.

I am using this season two inches between the bottom-board and hive-body in conjunction with the winter entrance-board, to secure space under the frame for clustering early in the winter; also ample space for dead bees, better ventilation, and as a further preventive of excursions in cold weather. I find these rims useful during the season when introducing queens from mailing cages, for top feeding, and wherever space is wanted above or below for experimental purposes. Each rim has a spur (the point of a wire nail) set exactly in the middle of each long side, so that, when placed correctly and pressed down on the

bottom-board body, or super, it does not slip about. The rim is placed with the spurs always on the under side.

Hoboken, N. J. C. D. CHENEY.

[At one time we thought there might be some advantage in making an obstructed entrance of some sort. The various devices that we tried to prevent a complete wind sweep did more harm than good—bees were confined, and proper ventilation was not secured. Colonies with obstructed entrances were either weak or died outright, while those with free entrances came out in good condition.—Ed.]

Rock Candy a Failure for Feeding

I fed my bees rock candy last winter. One cake of candy was too hard. This the bees could not eat at all, so they starved. The other cake was underdone to the extent that drops of syrup would form on the under side of the cake after standing a while. This the bees ate; and if they had had another cake when that was gone I could have saved them. The colonies I lost cost me \$8.00; but I would not take that much money for what I learned.

Next winter I will make a dough of pure honey and sugar, then I will make shallow wooden boxes of $\frac{3}{4}$ stuff—2 inches deep and 12 square. I will put on the stove a wash-boiler containing a bucket of water and a 15-cent cake of paraffine. Just as soon as the paraffine is melted I will dip the wooden trays in the mixture a few times until they are coated inside and out. The trays should then be filled and set on top of the brood-frames. After bridging over the trays they should be covered with some kind of thick paper, and then put in the packing—the more the better. Such colonies will winter sure. I would not advise any one to try to winter bees on rock candy; for even if they eat the candy there is likely to be some of it wasted—by the small particles falling down between the frames.

Jonesboro, Ind. C. A. NEAL.

[If you can feed syrup in October so that the bees will store it in the combs we are quite sure you will find it not only less work, but more satisfactory in every way. We would advise the use of candy only when the stores have run short during cold weather when syrup can not be had.—Ed.]

A Plea for Cellar Wintering

A great deal has been said of late in favor of outdoor wintering of bees, and we rather think the editor favors that method for us Northern beekeepers. Of course it is taken for granted that outdoor wintering is all right for warmer climates. My own experience is that here in Pennsylvania cellar wintering is much to be preferred—first, because it requires less labor and fewer stores; and, secondly, it is surer to bring the bees safely through our long rigorous winters. For the past eight years we have wintered our bees in our house cellar with uniform success, never losing a colony unless it lacked stores or bees when put in in the fall.

Last winter was the coldest for 40 years in this locality, and the temperature in this cellar was almost to the freezing-point for days; yet we lost not a colony except one that was queenless for a long time in the fall and contained only old bees.

Our cellar is 22x28 feet, built of small flag or field stones and mortar, all except 18 inches on top, which is laid with rockface split stones. A drain is under the entire wall leading out to a near-by ravine. The adjacent soil is clay; but the cellar is always quite dry, but not too much so for a good vegetable-cellar.

A summer, or beam, passes through the cellar lengthwise, supported by two heavy posts resting on stone pillars. Between these posts our bees are stacked without any preparation except provision for sufficient stores. We like to have the hives in the center of the room, as there is less mold there, owing to the better circulation of air. As soon as the buckwheat flow is over, the supers are removed, as that is the last honey-yielding plant that gives any surplus. The covers are put down on the brood-chambers, and the bottoms are reversed from deep to shallow entrances. This precaution is for the purpose of keeping out mice.

The deep side of the bottom-boards would be better than shallow in the cellar if it were not for mice getting in and chewing up combs.

As soon as settled cold weather comes on, the colonies are carried into the cellar and stacked, and that is about all there is to it. There is no fussing with packing and paper covers, etc. We simply carry them in and carry them out again in the spring. No quilt or mat should be used on top of the frames while the bees are in the cellar. The bee-space between the cover and top-bars should be entirely free for the easy passage of bees over the tops of the frames. In fact, we long ago discarded all mat or cloth covers on brood-chambers. They are an intolerable nuisance. We use oilcloth covers on top of section supers only.

All around this cellar are bins usually filled with potatoes, apples, and other vegetables; yet the bees have always wintered successfully.

If a warm day comes in February or March we carry them out for a fly, remove the dead bees from the bottom-boards, and return them until settled warm weather.

Summerville, Pa.

W. P. KEEFER.

[Where there is a perfect cellar, no plan of wintering is so ideal; but if the conditions in the cellar are not right, or in locations where the winters are open with comparatively short stretches of cold weather, the outdoor plan is the better. There is a great difference in cellars. In some, where conditions seemed to be all right, we have lost a good many colonies.—Ed.]

Bees Wintered Better Packed in Paper than in Wooden Cases

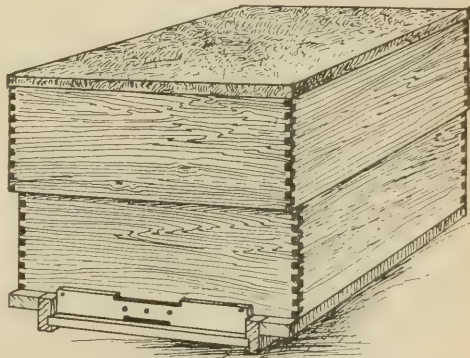
I read in the Feb. 1st issue with much interest the discussion between J. L. Byer and others in regard to winter cases. Especially was my attention called to Mr. Byer's opinion of black paper cases for protection, because at the time of the discussion part of my bees were in paper cases.

I can't number my colonies by the hundred, but I keep bees in the back of a city lot for relaxation, pleasure, and profit. I have my hives set in pairs about a foot apart and three feet between the pairs. Heretofore I have used large knock down wooden cases containing one pair of hives, allowing two inches of chaff under the hives and 10 inches on all sides, and 12 inches on top. I have had splendid success wintering in these cases; but last fall I had eight hives more than I had cases for. These I packed in paper. First I took old newspapers, covered the cases all over, about 25 sheets thick, then covered this with table oilcloth, and on top of this I put black roofing paper.

I had no trouble with bees flying out when too cold, neither did they freeze inside, and sweat, as some report. But they wintered better and came out more vigorous than the ones in large wooden cases; and the two that I lost out of 22 were in wooden cases.

Urbana, O.

O. J. JONES.



Holtermann's entrance-contractor, mentioned on page 75, Feb. 1.

Three Essentials for Wintering Outdoors

Last season the bees all over this part of the country got practically no nectar after June 20. In order to stand some show of wintering them I fed each colony about 25 lbs. of granulated sugar, commencing with a little stimulating feed for the purpose of keeping the queen laying as long as possible; and in October I gave them about all they would take from the Alexander feeder in one hour; and by November 24 I had them in fairly good condition, with plenty of young bees and good pure sugar syrup.

I then put them in a row several inches above the ground, packed leaves under between and on top of them until they were completely buried. Then I made a frame around them, well covered, and contracted the entrances to about $\frac{3}{4} \times 4$, and bade them goodbye until April 2, when I unpacked them, found one dead, seven fairly strong, four rather weak, and one queenless.

The fact that I lost just two out of 13 colonies, and in a winter when there was a lot of zero weather at that, makes me feel like promising that I will not lose that many any more. There are three things essential to perfect wintering of bees on the summer stands—namely, a young, vigorous queen; plenty of good food, and a good packing of leaves.

Indianapolis, Ind.

J. F. KIGHT.

Cellar vs. Outside Wintering

What are your reasons, Mr. Editor, for saying you know that it takes much less skill and time to winter outside? In this locality it is quite the reverse, as it requires an expert to prepare properly a lot of bees for successful outside wintering; and a lot of time and work, aside from a large expense for outside cases. But anybody can carry a swarm of bees into the cellar, remove the cover and oilcloth, and spread a piece of burlap over the top of the hive. The bees, too, will winter just as well as those outdoors, if not better, and on about half the amount of stores. I am 58 years of age. This fall I put 131 colonies in the cellar alone in four hours. I am of the opinion that it would require a week to prepare them properly for outside wintering.

Union Center, Wis.

ELIAS FOX.

[You undoubtedly have a cellar that is ideal. If one has but little experience we think he would have better success in wintering out of doors than if he attempted to create ideal conditions in a cellar where the ventilation or temperature is not right. Perhaps we did not properly explain our former statement to which you refer.—ED.]

An Empty Super Placed Over the Brood-chamber for Packing Material

I have a way of packing bees for winter that I think is worth telling. I place an empty super over the brood-chamber, and in it put three or more section-holders spaced several inches apart. I then spread burlap sack, or any other cloth, over the bottom of the super inside, and pack dry autumn leaves until it is filled. This plan keeps the bees warm, yet allows ventilation through the leaves. At the same time, the bees have room to pass over the top-bars from one comb to another. We use no packing around the sides of the brood-chamber in this vicinity.

Arkansas City, Kansas.

W. L. POWELL.

No Loss Last Winter

My bees have always wintered on their summer stands. Some hives are packed in chaff and some in ground cork. The stores are mostly goldenrod and aster. Last winter was a record one for cold in this locality, but my bees wintered better than in any previous season for twenty-six years. There were no losses, and less than six quarts of dead bees and sweepings from 35 colonies.

Bowdoin, Me., May 7.

W. L. MALOON.

Inverted Butter-plate Makes a Good Clustering-place

As my plan of packing bees for winter, given in GLEANINGS, p. 664, Nov. 1, in which I advised placing an inverted wooden butter-dish, holding about a quart, over the frames, as a clustering-

place for the bees in cold weather, was criticised by some beekeepers, I will now report that, out of 78 colonies so packed, 75 came through our unusually long and severe winter in first-class condition, and the three that perished were found to be short in stores—pure neglect on my part. I have never before had stronger colonies at this season of the year.

ISAAC F. TILLINGHAST.

Factoryville, Pa., April 25.

Wintering Bees in the Cellar

I set my hives faced to the wall of the cellar, give full-sized entrances, and turn the covers bottom side up; detach the cloth cover from the frames near the back part of hive in order to give good ventilation, and never have any loss, with the exception of a few from dysentery one winter. I attributed this to poor quality of stores or lack of stores.

Madison, Me., Feb. 28.

W. G. SAWYER.

Cheap Concrete Blocks for Hive Foundations

For making hive foundations of concrete I use empty quart cans, such as old tomato-cans, etc., for forms. I use one quart of cement, two parts of clean sand, and five parts of gravel. When all are thoroughly mixed dry I add water while stirring constantly until it is quite soft. I fill the cans partly full of the mixture, and then put in any pieces of rocks that will go into the can, and pour in more concrete until the can is level full. After shaking them so that all air bubbles come to the top I set them in a level place for a day and a night; then take four to each hive, turn them bottom side up for the hive to rest on. When the tin rusts off the round cylinder of concrete is left.

Fremont, Mo.

MRS. ALMEDA ELLIS.

[It is very important to mix thoroughly the concrete material dry, then wet it, to the consistency desired. Your scheme of old fruit-cans to make the forms is excellent.—ED.]

Is there any Advantage in Placing Supers Below rather than on Top of the Brood-chamber?

Can bees be induced more readily to work in the super by placing the super below the brood-chamber for a short time? Is any bad effect brought about by such method? When an after-swarm is led off by a virgin queen, does the queen mate while the swarm is in the air, or will she, after the swarm is hived, leave her new home to make her wedding-flight?

Deerwood, Minn., July 27. WALTER G. WETZEL.

[There is no advantage in placing a super below the brood-chamber—in fact, rather a disadvantage. It should be placed on top of the hive, where it is the warmest, because bees, in order to do good work, should have the temperature right for comb-building. The lower part of the hive, or next the entrance, is comparatively cool, and we doubt if comb-building could progress as it should, except in extremely hot weather. Putting a super beneath the hive might have a tendency to check swarming; but we believe that is all it would accomplish.

A virgin queen, when she goes out with an after-swarm, does not meet the drone unless the bees follow her on her mating trip, which they will do sometimes. Ordinarily the swarm seeks its new quarters; and after they are comfortably settled, the virgin queen goes out on her mating-trip.—ED.]

The Difference Between Golden and Five-banded Bees

What is the difference between golden bees and the five-banded Italians? What is the difference in the color? Do you think there are differences in the working qualities? Do you think the golden bees would suit where I live?

Meadow Creek, W. Va. ALEX. BENNETT.

[The golden Italian refers to extra-yellow bees, without reference to any number of yellow bands. The five-banded Italians refer to bees that have five yellow bands, and such are supposed to be extra yellow. Our own preference is, however, for the leather-colored Italians, because in our experience the extra-yellow bees are short-lived and inclined to be cross.—ED.]

Our Homes

A. I. ROOT

While he yet talked to the people, behold his mother and his brethren stood without, desiring to speak with him. Then one said unto him, Behold thy mother and thy brethren stand without, desiring to speak with thee. But he answered and said unto him that told him, Who is my mother! and who are my brethren? And he stretched forth his hand toward his disciples, and said, Behold my mother and my brethren! For whosoever shall do the will of my Father which is in heaven, the same is my brother, and sister, and mother.—MATT. 12:46-50.

Many times while dictating these Home papers I have earnestly prayed for wisdom and guidance from above. Especially this morning I feel like uttering a prayer something like this: "O Lord, help me to comprehend the *full* meaning of the beautiful text that stands at the head of this Home paper. Clothe me with thy Holy Spirit that I may make known to the multitudes who are following me the great truth and the much-needed truth brought forth in the words of our Savior when he said, 'Behold my mother and my brethren.'" It occurs that, in years gone by, I have heard adverse criticisms of this very passage. It probably came from the same skeptics who were trying to find fault with some of the words and doings of our Lord and Master. If I remember correctly, they said he had become so excited and set up by the wonderful miracles he was performing that he refused even to notice the mother who had nursed him and the brothers and sisters who had been his companions through childhood. It is only within about 24 hours that the full significance of this wonderful passage has been revealed to me—or perhaps I had better say, partially revealed; for all that is included in those five verses will, perhaps, never be fully explored while the world stands. Just now the world seems to expect that a man shall not only respect and reverence his father and mother, no matter *what* happens, but he shall remember the ties of brotherhood and sisterhood and relationship. If one of the family gets to be quite wealthy, public opinion, and, we may say, good common sense, say that he should look after his poor relations, and at least give them a helping hand. This is all right and proper. But let us push it a little further. Suppose some man who is high up in the world, and has authority—one, say, who has been given some high position in the State or in the general government of the United States; and suppose this person should begin right away to put his relatives into important offices, and give them big salaries. You may smile at this illustration when you remember how many times this has been done and is being done. Suppose this same man who

is paid a handsome salary by the government to protect the interests of the people begins to manipulate politics and finance so as to "feather his own nest," or, if you choose, the nests of his particular friends and relatives. As you take the above into consideration I should not wonder if you would smile again. Let us now go a little further still.

Suppose the policemen of our great cities, and perhaps I might include some small cities also, who are employed to protect the public—the women and children—those who are unaccustomed to city ways and customs—the ignorant and untutored. This big policeman is supposed to be a *father* to all these unfortunates. He is appointed to see that every woman and child has a chance to live and have a "square deal" all around. Suppose a saloon-keeper begins to cultivate the acquaintance of this policeman, or, may be, the saloon-keeper who lives neighbor to him is on friendly terms. Suppose this policeman should hesitate to do his duty because of old acquaintance, or because the offender is an old acquaintance, or may be a relative. Let us now push the matter still further. Suppose a saloon-keeper agrees to give his friend the policeman five dollars a month, or may be, where he is doing a big business, five dollars a week, providing said policeman will look the other way when trouble happens in his saloon, or use his influence generally to protect him from arrest. Let me mention an instance of recent occurrence—or, instead of mentioning the incident, suppose I mention a few names: Lorimer; Judge Archbald; Judge Hanford, of Seattle; Police Lieut. Becker, of New York, and Rosenthal, who was recently murdered by the alleged connivance of the said Becker*, and Stephenson and Holstlaw. I presume I need not go any further. The trouble is these judges, policemen, governors, and (I wish to say it with reverence

*I might mention also from our own State of Ohio, Senators Dingle, Andrews, and Huffman. While going over the above names, that expression in one of our former Home papers comes vividly to my mind: "*4700 dirty dollars*"—dollars that he did not need, and, in fact, had no use for after he got them." What an awful contrast between this spirit and that of the Master when he said, "These are my mother and my brethren"! There is no mention, I believe, in the Bible where Jesus ever had a dollar. In fact, he owned nothing. He once said, "The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head." I have been told there is good evidence that the clothing he wore was supplied by thoughtful good women; and yet he in his poverty healed more pain and conferred more happiness on humanity at large than any mere mortal who ever lived. "He pleased not himself."

and respect), presidents of the United States, were biased by selfishness in using their influence for the benefit of the people. Instead of loving humanity, high and low, rich and poor, equally and alike, they love their friends who have helped them to get important offices, etc. Now, I am not expecting too much of humanity—at least I do not believe I am; for I suppose there has never a man lived, and perhaps never will live, who could say as Jesus did, as he stretched his hand out toward the multitude, "Behold my mother and my brethren." What he meant to convey was this: Every child of humanity on this whole broad earth is just as near and dear to me as my own mother, my brothers, and my sisters. Who is there living who can say as much? What would it be worth to our nation if we could have just a *few* such men in office? As I try to comprehend the great truth here with my feeble human intellect, my little prayer wells up, "Lord, help." Some of you may say, "Mr. Root, do you practice what you are preaching? Do you love the great wide world as you love your wife, the memory of your good mother, your boys and girls, and sons-in-law, daughters-in-law, and grandchildren?"

As I contemplate it this minute, that little prayer rings out again with additional emphasis, "Lord, help." At such times as this, when I consider my own frailty, I thank God I can say, as poor Peter did, "Lord, thou knowest that I love thee;" and I can add (thank God), "Lord, thou knowest that I am hungering and thirsting after righteousness every day of my life." Perhaps it comes by fits and starts; but I believe it is coming oftener and stronger as I pass the mark of threescore years and ten. You perhaps have recognized that these Home papers are taking a wider scope than they did years ago. Not only are the common people reading my pleadings for righteousness and fairness, but at least one or two millionaires who got started in beekeeping are giving me encouraging words and telling me to go on.

We are told, "Thou shalt love thy neighbor as thyself." And if you ask who is your neighbor I am glad to point you to that beautiful parable that answers that very question. If I understand it correctly, our neighbor is any one who happens to be in trouble, and who is needing help. He may be white or black, rich or poor, or he may live on the other side of the earth.*

*Right in line with the above I might mention that the world is just now getting stirred in regard to the cruelty exercised toward the natives in Peru, who are gathering rubber to make our automobile

He is our neighbor still; and if he has fallen among thieves and is wounded, robbed, and "ready to die," if we belong to the Lord Jesus Christ we can not escape the responsibility resting on us. That man, though he be far away, is a part of humanity; and when Jesus said, "Behold my mother and my brethren," he meant it to include humanity throughout this whole wide world; and my impression is just now that the highest enjoyment and the greatest happiness one is capable of is along the line of our text and its teaching—that they are not only neighbors but brothers and sisters of the Lord Jesus Christ.

To illustrate the *difficulty* of climbing above human temptation, let me mention one or two instances. Years ago there was a shortage of coal here. It could not be had for love nor money. It was then almost *impossible* to keep our machinery going by buying expensive wood. We were on the eve of shutting down for want of fuel. A carload of coal stood on the track close by our boiler-room. The railroad company needed it to run their engines, and would not sell it at any price. I think I prayed over the matter, and finally our station agent came over and said something like this:

"Mr. Root, we appreciate what you have done to keep our Medina people busy during the cold winter with your factory and various offices. While that car of coal is not for sale, we have looked the matter over and decided to let you have it in order to keep you going until some more can be had."

You can, perhaps, imagine (or at least partly) how grateful I felt toward him. Now listen. With a sly twinkle in his eye he said:

"Mr. Root, would you be willing to put your name at the head of a paper recom-

tires. See the following, clipped from the Chicago *Advance* for Aug. 8, they copying it from the *British Weekly*:

"At the very time when the words 'Great rubber boom' were displayed on London posters to tempt greedy investors, the poor Indians of the Peruvian forests were dying in agony. The full responsibility for these crimes must be placed on the government of Peru. By failure to punish the evildoers individually and collectively, Peru will forfeit the right to exist as an independent republic."

I wish to call your attention to the closing sentence—who is to bring this about? If I understand it, the responsibility rests on the civilized and Christianized nations of the earth—the United States standing, if I am correct, in the forefront. Is not the time coming when the spirit of the master shall leaven the whole lump of humanity, so that no more slavery, barbaric cruelty, nor suffering from starvation and hunger, shall exist *anywhere* on the face of this *whole wide earth*? The sentiment of our text will bring it about, and it is the only thing in this whole wide universe that will bring it to pass.

mending my father for postmaster? You get almost as much mail as all the rest of the town together. You are well acquainted with my father. Don't you think he would be as good a man for the position as we have in sight?"

There you have it, friends. What could I do under the circumstances? It happened in this case that his father *was* a very good man, and had been postmaster before, so he was well qualified for the duties. But suppose he had been a man wholly unqualified for the place—then what? None of us, especially those of us who profess to be Christians, like to be uncivil or unaccommodating. I suppose we often assent to some things that we can not exactly approve of, because it would be unseemly or uncivil to refuse.

In the incident quoted in regard to the Savior, we are not told that he stopped his work even to talk with his mother and family. In another place we are told the family remonstrated with him, and told him he was wearing himself out. They wanted him to take a little rest. How could he rest when he saw the suffering, the injustice, and the lack of a Christian spirit? Let me give you another illustration. If the incident did not exactly happen, something very much like it *has* happened or might easily happen.

A boy and girl were brought up together. The boy was the older of the two. While his sister listened to her mother's teachings, and became a pure sensible girl of lovely character, the boy fell into bad ways. Tobacco and strong drink carried him down and down until he got into the maelstrom of worse evil than either of the above. His sister went to a large city alone to meet a friend. She had an idea that her brother was in the same city; but as it had been a long time since he had written home she did not know where to find him. By some mistake her friend did not meet her at the station. She told a lady who happened to be there of her perplexity and trouble. This lady (?) said that, very fortunately, she lived quite near her friend, and would take her there in her own carriage. This woman whom I have called a lady was an agent of the white-slave traffic; and in a few hours this girl found herself in a strange place under lock and key. Along in the night the door was unlocked. This same woman ushered in a stranger, saying, "There is your girl, and I think you will find her all I represented her to be."

The brother and sister faced each other appalled, and I think the outcome was that they knelt down together and thanked God

that it was *her own brother* who had paid quite a sum of money in order that he might meet the sister of *somebody else* instead of his own. Do you see the application, dear friends? Had this depraved and vile victim of evil associates loved *all* the nice-looking girls in the world, just as he loved and revered and respected *his own sister*, the daughter of the same sainted mother, how could he have consented to be a party to such work?

If all humanity or just a sprinkling of humanity could for a part of the time stand where the Savior stood when he said, "Behold my mother and my brethren," what sort of world would this be? What a difference it makes when we unexpectedly run into relatives or relationship!

At some gathering of a lot of men, I have forgotten where, some one stood up and told a story that reflected on all woman-kind. There was one Christian man in the lot who could not stand it. When the laugh and jeers had subsided he got up and said something like this:

"We presume the gentleman who told this story had in mind his own wife, mother, and sisters."

This little speech made a row. The one who told the story was ready to knock down the man who had insulted him. It seemed as if the great truth in the lesson before us could scarcely gain a foothold in his sin-stained heart and mind. May God help *us*, we who call ourselves *men*—may he help us every day of our lives to look on all womankind, especially in this present day, when they fill our busy streets attired in garbs that would rival the butterflies of summer—let me say it again, may God help us, who call ourselves men, to look on every woman, and to *think* of every woman in our inmost souls, as we would that other men should look on and think of *our* wives and mothers and daughters.

Just before dictating this Home paper a letter was put into my hand. There is one passage in this letter that shines out like a bright star. The writer says, "The greatest asset that ever comes into a man's life is the Lord Jesus Christ." Can't you—a great lot of you—say amen to it, and pass it along? By the way, I think I will give the whole letter, or a great part of it, for it is a bright and shining one, to a great lot of others as well as to your old friend, who is very likely, *at this very moment*, as your eye alights on these pages, praying that he may look over humanity throughout the whole wide world, and say with the dear Savior, "Behold my mother and my brethren."

My Dear Brother Root:—I have been thinking of you of late. In regard to the excellent work you are performing for our Lord, I must admit that I have been a poor Christian. I have been a heavy smoker and chewer, and a light drinker. I well remember being intoxicated once in my life. About three years ago I happened to pick up one of your GLEANINGS at a friend's house, and in looking over its pages I noticed your excellent work in bringing souls to God. Your notes at once took such a hold on my heart that I began to pray to our Lord, asking him to give me grace, and help me to abstain from drink and tobacco. At once I began to realize that I had heretofore been taking the "wide path." Thanks to our heavenly Father that I did visit this friend, for I have now no desire for drink or tobacco; have not touched it in three years, and, with the help of our Lord, I never shall. When I told my better half of my intentions she thought I would be back to my old ways in a few days; but now she is delighted with my reforming.

We have five children—from thirteen to twenty-five—all in fine health, thank God.

When I began this "reforming" I thought of our Saviour, who fasted in the wilderness forty days and nights. In other words, he was preparing for the crucifixion, not because of notoriety—nay, it was a spontaneous affair from start to finish. Yes,

it was the demonstration of genuine, Christlike love, that all the world might have life, and have it "more abundantly." No man has ever championed the rights of the people with such love and sincerity as did our Lord. Likewise, no one has ever had such a burden to bear; and most certainly the world has never had such a conqueror, though as yet I fancy that we are failing to practice the plain and simple teachings of our Lord. Our false pride is robbing us of our daily happiness. The sooner we can see each other as members of the human family, entitled to all the blessings of our heavenly Father, the sooner shall we have heaven on earth. Jesus Christ is the greatest asset that a man can have. This I have experienced, thank God.

How true the saying, for Jesus has said "Without me ye can do nothing!" Behold, the light of heaven is still shining, for "God is love."

Yes, brother Root, I feel like a new man, and am so happy because I know I am with God since I have learned to love my Saviour.

Now, brother Root, I feel that God inspired you to perform this noble and holy work, to bring us poor sinners to him. God bless you, brother Root. I hope to see you some day in the near future, hoping that our Lord will spare you many more years.

A. SANDERS.

Orange, N. J.

High-pressure Gardening

TRANSPLANTING AND CULTIVATION OF ALFALFA.

With the present outlook in regard to the importance of alfalfa on the farm, and to poultrykeepers in general, it looks as if every man, woman, and child who has even a little bit of ground should learn to grow alfalfa; and we might also say the same thing in regard to its near cousin, sweet clover. Alfalfa is now universally acknowledged to be one of the most important legumes, if not the *most*, for all kinds of farm stock, and great quantities of alfalfa meal are bought and used by poultrymen; and since it is being daily demonstrated that alfalfa can be profitably grown almost everywhere in the United States, and, for that matter, all over the world, it behooves us, each and all, to find out by experiment just how to grow it in our own locality. The *Dakota Farmer* has given us a recent article from the man who has been testing different varieties of alfalfa. I think the Department of Agriculture sends him out to collect seed of different varieties. We have space to give only the following extracts from the article:

We have been giving demonstrations of my new method of handling alfalfa by transplanting the one-year roots instead of sowing seed. May 2, 1912, we had a demonstration at the J. W. Parmley farm, Ipswich, South Dakota, and set plants at the rate of 100 per minute or 6000 per hour.

Demonstrations of this machine planting were first made on April 23 at Brookings, then at Redfield, Big Stone, Eureka, McIntosh, Lemmon, and Onida. I claim no originality for the method except that this is the first time where a machine has been used for transplanting alfalfa. In other words, I have combined an old Oriental method with an American machine. I took one of the standard transplanting machines, the Bemis, used

for tobacco, cabbage, tomatoes, cauliflower, sweet potatoes, and many other plants, using a nine-inch shoe slightly widened at the back to allow more space for the alfalfa roots. This was done by a local blacksmith. Personally I have used the method since the spring of 1907, with the new alfalfas I brought from Russia and Siberia. Being trained as a horticulturist, I knew it would be the best way to make the most out of a small quantity of seed. Some of the reasons which occur to me at this time are:

1. The present method of using twenty pounds of seed per acre means fully one hundred seeds per square foot. Instead of that, every plant should have several square feet—the exact number no one knows as yet. The distance probably depends on the soil, elevation, and moisture conditions.

2. Alfalfa plants should be given full opportunity for maximum development. When set in the garden two by four feet, we get plants with over 500 shoots to the crown, and bearing as high as three ounces of seed per plant the third year, on plants transplanted the first year from seed. This means 1029 pounds of seeds per acre. The variety was the one secured in Russia, which I have named Cossack. From present prospects they will yield much more the present season.

3. The parasite vine known as "dodder" is a very serious menace to the alfalfa industry in a great many States in the West. It is extremely difficult to separate it; and when in the field it will soon ruin it. In Europe such fields are put out of commission by the government. But plants in hills could easily be kept clean.

4. The present methods of overcrowding the plants give an inadequate supply of moisture. Such plants are much dwarfed and can not form the long tap-root necessary to endure drouth.

5. If the plants are raised in thoroughly inoculated soil, every plant will be perfectly inoculated before setting it. This is of itself a great advantage. A farmer can see the nitrogen-gathering bacteria nodules with his own eyes.

6. The present methods of diskings are extremely injurious. Such plants quickly become black-hearted, and the germs in the soil which produce decay soon obtain entrance. This crown-rot causes the plants to die early. I am fully aware that this is contrary to the present teachings of all the experiment stations, farm papers, and farmers' institute lectures; but I am satisfied that a careful examination of plants will show the truth of this statement. Alfalfa spike-toothed "renovators" would no doubt cause similar injuries. Alfalfa fields in the Orient are shown four hundred years old; but the Orientals do not mutilate their plants as we do. The heart

of an alfalfa plant should be held as sacred as the heart of an oak tree.

7. Alfalfa plants in this spring's demonstrations were set two feet apart in the rows, with rows three feet eight inches apart, so that the common corn-cultivator can be used. My opinion is that they should be given cultivation one way just like fodder corn. But perhaps check-row machines will be devised to make feasible mechanization in early spring and after each cutting.

8. Alfalfa is a very poor fighter the first year, as the main strength goes below ground, hence it is often choked out by weeds which make more top than root. But by setting out a goodsized alfalfa plant, often as big as your middle finger, they can hold their own better against the weeds.

9. Over 1200 farmers are co-operating with me in testing these new alfalfas. Some report obtaining 7000 to 8000 seeds per plant the first year, and one North Dakota farmer reports raising one pound of seed in 1911 from eight plants set in the spring of 1910, which means 25,000 seeds per plant. The variety was the Cossack.

10. The plants should be raised the first year in good garden soil that is well inoculated. They may be transplanted in the autumn of the first year; but the bulk of them should be kept in outdoor cellars, such as are used for storing potatoes or trees, or they may be heeled in close together in furrows made with a plow. In 1910, at this station, on a piece of good garden soil 60 by 165 feet, 50,000 Orenburg alfalfa plants were raised, which is about 220,000 plants per acre. Probably much more could be done if no cut-worms, etc., appear. These were raised in drills, much like carrots and beets.

11. The plants are dug with a tree-digger, cutting under the roots, which is better than the plow, as the plants are easier to find. This implement is much used by nurserymen. Some of the cheapest cost as low as twenty dollars, and can be made by a good blacksmith. The roots are shortened by using a meat-cleaver on a block of wood, being careful to avoid bending the roots. It is better to shorten the roots than to bend them, so that the new roots, when they form, will go straight down. When set, the roots are covered entirely with earth, thus preventing evaporation until established.

12. I believe that the method will very greatly hasten the spread of the hardy Russian and Siberian alfalfas throughout the prairie Northwest.

On my alfalfa-planting tour I found in almost every place, men from Wisconsin and other States who had worked on these tobacco-transplanters, and knew that they are a commercial success in transplanting almost any thing in the plant line. We found that one barrel of water is sufficient for 5000 plants.—Prof. N. E. Hanson, *South Dakota State College of Agriculture and Mechanic Arts, Brookings, South Dakota.*

Please notice in the above the amount of seeds wasted when sown broadcast or even drilled in. This wasteful broadcasting would use a thousand seeds where only one is needed. Suppose a farmer should undertake to raise a crop of corn by such a wasteful method; and from what experience I have had with both alfalfa and sweet clover that came up in the garden, and thus secured the benefits of cultivation, I honestly believe it will pay to grow your plants and set them out and cultivate the alfalfa one way, and possibly both ways, just as we do with corn. The additional fact that you get rid of dodder and all other pernicious seeds is a matter well worth considering.

Now, shall we not, every one of us, get to work and grow some alfalfa in our garden in order to learn how? When you have grown a square rod successfully you

are ready to grow an acre. Professor Thorne, of our Ohio Agricultural Experiment Station, recently told me we could get inoculated soil wherever we can find a rank growth of sweet clover.

Let me add, in closing, that good wholesome bread is now being made in California from alfalfa meal; and I suppose this meal is chiefly of alfalfa leaves. Now is the time to sow the seed, just after you dig your early potatoes, or where seeds have been removed from your garden; but whatever you do, give your soil a good liming. An excess of lime can not do any harm, and lime will always be a benefit, more or less, with sweet clover.

"WHO IS MY NEIGHBOR?"

In connection with the topic discussed in *Our Homes* in this issue is another matter. While discussing natural-hen incubators, page 391, June 15, I neglected to mention that the vender of the single sheet of paper, for which he charges \$1.00, wrote me a very nice and kind letter, telling me how much he appreciated this department of our journal, hoping I would see my way clear to use my widespread influence in helping him introduce his discovery, etc. Now, I confess it is pretty hard to show up a man as a fraud when he writes so kindly; but where does my duty lie? Shall I favor this one individual who writes a kind letter, or should I protect the honest, hard-working people scattered all over our land? *Who* is my neighbor? I think I can almost hear the voices of thousands, telling me to go on exposing frauds. Well, just now I stand face to face with another thing along this very line. A good friend of GLEANINGS sends me a clipping from one of the poultry journals. It reads:

Blanchard's new system of corn raising increases your yield 10 to 25 bushels per acre.

Furthermore he says:

You can have confidential use of this information for \$1.00; and as long as my supply lasts I will mail you one ear of corn, perfectly tipped, to show what I have accomplished. You can use this for seed. Book and corn come together. The biggest dollar's worth on earth.

W. J. BLANCHARD, Abington, Mass.

After I sent the dollar, another pleasant letter came, saying that the writer, years ago, took our journal, has the A B C book, etc. He says he very much enjoyed reading my sermons, etc. With the letter he sent four beautiful ears of corn, the kernels growing clear up over the tip. Now, inasmuch as friend Blanchard has treated me very handsomely, *perhaps* I ought not to complain, or at least not complain very much. The four ears of corn, on which he paid 21 cents postage, are very likely

worth a dollar for seed; but as a rule he sends only one ear of corn, and, as I take it, not always that.

What about the book on corn-raising? It contains just 12 pages. Nearly one-fourth of the book is devoted to advertising his strain of White Leghorn chickens. The rest of the book, as I understand it, is about as follows:

Most corn-growers are in the habit, when shelling corn for seed, of discarding the small kernels on the tip and the bad-shaped ones on the butt of the ear; and I think our experiment stations have recommended this more or less. I can not now recall just what Professor Holden says about it; but I think that he also rejects these small ill-shaped kernels; and it now occurs to me that I have somewhere seen it stated that these kernels on the tip of the ear should *not* be thrown out when planting, for the reason that, if you plant these as well as

the others, you will be more likely to get a strain of corn with the grains all around the tip as thick as they can stand. Well, Blanchard's "new system" consists of saving and planting these tip and butt kernels, and *not* throwing them away; and this invention, so far as I can make out, is simply going contrary to what the experiment stations have advised. I am unable to find any thing in the entire book worthy of mention (aside from the above) that will enable the farmer to increase his yield from ten to twenty-five bushels per acre, as advertised. Once more, who is my neighbor—the man who writes kind letters and sends us advertising matter, or the 30,000 at least *mostly* honest people who subscribe for GLEANINGS with the understanding that I am expected to be neighbor to each and *all of them alike*? May God help me to do my duty, even though it may offend at times.

Health Notes

THE DEPARTMENT OF AGRICULTURE AND ITS RAID ON MISBRANDING, ETC.

I have just received from the United States Pure Food and Drug Commission a great heap of leaflets in regard to the work the Department of Agriculture is doing. Let me mention briefly a few of them:

Dr. Caldwell's rheumatism cure. This was alleged to be "A certain cure for acute and chronic rheumatism in all its forms. . . . This medicine cures by expelling the acids from the blood . . . restores the liver, kidneys, and skin to a healthy condition, . . . thus effecting a permanent cure."

The Department sentenced him to pay a fine of \$200 and costs, particularly as the medicine contained 14½ per cent of alcohol, which was not mentioned on the label according to law. This amount of alcohol, like "Duffy's malt whisky," made the patient *feel* better for a brief time, but does not effect any such cures as claimed. This same doctor puts out anti-pain tablets, but does not mention the amount of acetanolid contained in them. This, too, was a fine of \$200 and costs. A confectionery called "whipped maple cream" contained no maple sugar nor syrup whatever. This incurred a fine of \$100 and costs.

"Wood's soothing syrup" is advertised to cure a lot of things, but it contains opium. The Department decided the circular was misleading and deceptive.

Absinthe is ruled out of our trade and

commerce, being pronounced "dangerous to the health of the people of the United States."

In conclusion, I hope the Department of Agriculture is supplied with men and money to go through the entire list of drugs advertised, and for sale in our drugstores; and may they not "be weary in well doing."

THE TRUTH ABOUT POKEROOT.

Mr. Root.—I have been scanning your pages for some time, expecting that some one would present the facts about pokeroot; but as confusion of ideas seems to continue I venture some additional information upon the subject. The botanical name of the weed commonly called *pokeroot*, sometimes "skoke," is *Phytolacca decandra*. Doubtless it has other popular names in different localities. In the New England States I have heard it called "garget root," because it is believed to cure a disease of the udders of cows, which causes bloody milk, and is termed "garget." This plant grows almost everywhere in the United States east of the Rocky Mountains. Whether it flourishes on the western slope of the continent I have not informed myself. Avoiding technicalities it may be described as follows:

The stalk is thick and spongy, growing from three to eight feet high, and putting out many oval-shaped lance-pointed leaves about three to six inches long, one to four inches wide; smooth, edges slightly wavy, and a dull green color above and lighter below. The whole stalk is killed to the ground by wintry cold, and shoots up afresh every spring. The flowers are arranged along slender amber-colored stiff stalklets often eight inches in length that spring directly from the main stalk and not from the point where leafstalks occur. They are very small, white, sometimes tinted with green, each floret having its own tiny stem, about a quarter of an inch long, and five roundish petals or flower-leaves. The centers are pea-green.

The root is branched, fleshy, somewhat fibrous in texture, and nearly white on being cut open. The sizes range from that of a finger to that of the arm. The flowers drop off, leaving a string of beautiful purple berries the size of a whortleberry (huckleberry), which adhere firmly to their

stems. Their juice gives a rich magenta stain. They have a sickly sweetish taste which sometimes tempts children, and causes poisoning. Starving migrating robins often devour them and are intoxicated. With one exception the whole plant is poisonous, causing vomiting, purging, convulsions, tetanoid contractions, and sometimes death. Several fatalities have followed cooking the root with vegetables.

Properly used, the root is a most certain remedy for chronic rheumatism, but requires skill and judgment in its use. The first early pale shoots that come up in spring are harmless, and make a welcome addition to mustard greens. When the stalk itself appears they should no longer be used. The plant is so splendidly ornamental that it should be more frequently seen.—H. A. Moody, M. D., *Professor of Materia Medica and Therapeutics, School of Medicine, University of Alabama, Florence, Alabama.*

I presume the above is authority in regard to the matter; but I do not quite agree with the concluding sentence—that is, if I understand it correctly. In Florida we clip off the young shoots, including a part of the stalk where it is certainly the size of one's finger, and we have cooked stalks and all repeatedly, and have never noticed any ill effects; and with the tremendous growth it makes, especially on rich ground, I do think it is worthy of cultivation as a garden vegetable. Perhaps it may be well, in localities where it has not been used, to eat it sparingly at first until you are satisfied it produces no ill effects.

BREATHING THROUGH THE NOSTRILS, ETC.

In GLEANINGS for Dec. 15 you make mention of a nasal trouble you have. Like yourself I like to get as much of God's pure air as I can, not only around me, but *into* me, and that through the proper

channel—the nose. For many years I tried hard to do all my breathing through the nose, and at last succeeded during the waking hours; but night time would find me sleeping with my mouth wide open, one or both nasal passages blocked up, and the top of my throat dry and distressed. Snoring, also, was often present. I tried various kinds of head harness to keep the mouth closed, but all to no purpose. They either required to be uncomfortably tight or else got shifted out of position. Some years ago a correspondent in the *English Mechanic*, replying to an inquiry, suggested a disc of celluloid to fit over or across the front of the teeth inside the upper and lower lips. I saw the point instantaneously, and made an oblong disc 3x1¼ from the rubber of an inside bicycle tube. After you cut it, just sandpaper the somewhat sharp edge; boil it for sanitary reasons; put it over the front of the teeth when you lie back on your pillow; and if you have cut a good fit you can not well breathe but through the nose, even if you wanted to do otherwise. When you rise in the morning, rinse it in water, and it will serve you for a year or two. Simple, is it not? Yet I can assure you \$100 would not tempt me to throw it aside. By the by, several years' use has not cured me of the habit of breathing through the mouth in sleep, as proved on several occasions, when I have tried to do without it. This may seem a small matter; but I can assure you it is not. Millions are suffering all sorts of dental, nasal, throat, and lung troubles, to say nothing about annoying others with their snoring, because they are inhaling through the mouth. We live a good part of our lives asleep, so let us do it properly.

Will you be good enough to pass this on to friend Terry?

By some means the address and signature of the writer of the above have been lost—something that rarely happens in our establishment. We have been holding it for some time, hoping to get track of the author. When he sees this, will he kindly assist us in giving him proper credit? Of late I have had so little difficulty in sleeping with my mouth closed that I have not tested the invention of our good friend.

Poultry Department

DRIP WATER FOR CHICKENS; A CHEAP ARRANGEMENT.

I herewith send you a description of a watering-fountain that is a little the best of any thing I have ever used. Get a wooden faucet and bore a hole near the bottom of a candy-bucket of such a size as to fit in tight. Set it in the shed so it will keep cool. Place it on a box up from the ground, and set underneath it a small galvanized dish that is easy to keep clean. Fill it with water and turn the faucet so it will just drip. By fill - the bucket once a day one will have a fountain that is cheap and easy to keep clean.

Okeene, Okla., July 7.

S. J. SPAULDING.

I would add to the above that I would have the water-bucket or half-barrel indoors on the north side of the shed in summer time, and on the south side when the weather becomes cooler and sunshine is more desirable; and instead of a galvanized dish I would have one of the cheap porcelain dishes, as they are easier to keep clean; and in place of the wooden faucet I would have one of the little brass faucets (or air-cocks), such as we buy of Sears, Roebuck & Co., for 15 cts. each. I like the brass faucets better, because they do not

need so much adjusting. The wooden ones swell and shut off the water unless you let it run so fast as to waste.

DUCKLINGS; WHY DO THEY DIE?

Would you advise me how to feed young ducks? Mine grow nicely for a time, then become unable to walk, and die. I have been feeding bran and shorts. Orangeville, Ont.

R. J. GALBRAITH.

Bran and shorts, or middlings (wet up) is all right; and when they get a little older, put in some corn meal; and water to drink must *always* be close by the feed. If you have been reading our journal you must have noticed what I have said about green food, especially lettuce. Give them all the lettuce they can eat, and I don't believe you will have any trouble. I suppose other green food will answer, but lettuce they seem to prefer to any thing else; and if they are not where they can get insects, etc., they must have some meat or some sort of animal food. Fresh meat from the butcher's, or bones ground up in a mill will be all right.

Temperance

PROHIBITION ON THE FARM AS WELL AS ON THE RAILWAYS.

This is the way the *Rural New-Yorker* looks at it:

For years American railroad men have been forbidden the use of intoxicating liquors while on duty. Rum spells ruin to the men handling such a powerful force as a railroad train—the same as it does in smaller enterprises. The D. L. & W. R. R. Company has now gone a step further in prohibiting the use of liquor, with the following order:

"The use of intoxicants while on or off duty, or the visiting of saloons or places where liquor is sold, incapacitates men for railroad service, and is absolutely prohibited. Any violation of this rule by employees in engine, train, yard, or station service will be sufficient cause for dismissal."

Now, seriously, there is not a person who ever travels on a railroad who will not agree that this order is right. There is not a brewer, distiller, or saloonkeeper who would knowingly give the liquor he sells or makes to the railroad men who handle the train whereon he rides! That being so, why stop at the railroad business with prohibition? There is no business on earth which does not face loss or possible ruin when workmen are free to drink liquor when "on or off duty." There ought to be just such handling of farm laborers, for rum has caused more loss and sorrow to farm homes than it ever did to the railroad business.

SOMETHING MORE ABOUT THE DRUNKEN ENGINEER; "FORTY LIVES BLOTTED OUT, AND SIXTY CRIPPLES MADE."

The fast express train was taken out of Elmira, New York, the other day, for the run to Buffalo on the Lackawanna Railroad. It had on board valuable property and still more precious lives. It went along safely until it approached Corning, and then it ran into a limited passenger train, piled up a wreck of engines and cars, killed forty persons, and injured sixty others.

What was the cause of the disaster? The engineer was drunk. Under the stupor of liquor he passed by the danger signal, paid no attention to the warning fusee that was burning, and disregarded the fluttered cloth of the flagman who had been sent back from the other train to flag him. "Booze" had made him dull.

One more is added to the long list of horrors due to drink. It is a black record. It is the most powerful sermon for total abstinence that could be preached—hundreds of thousands of dollars' worth of property destroyed, forty lives blotted out, and sixty cripples made—all by one man who was drunk.—*Catholic Columbian*.

SAWMILL OR SALOON—WHICH IS THE MORE DANGEROUS TO HUMANITY?

I presume it's comparatively well known that manufacturers are being held more and more liable for damages resulting to workmen using dangerous machinery. If a man is hurt in a sawmill, when he uses ordinary care, the owner of the mill is held responsible. But how about the owner of the saloon? Here is something in regard to the matter, which we clip from the *American Advance*, and it also gives us a little further glimpse of this same Gov. West:

Mr. Edward H. Todd, of Salem, Ore., has noted that Governor West, of that State, favors a "just compensation law requiring the saloon as well as the sawmill to care for its maimed." It is Gov. West's theory that the saloon should no more ask the taxpayer to care for the man whom it has made insane or a pauper, than that the sawmill proprietor should ask the public to care for the man who loses his limb because of the misbehavior of a buzz-saw.

THE BEER BUSINESS AND OUR BOYS; CONDITIONS IN SPRINGFIELD, O., SINCE

SALOONS ARE AGAIN RUNNING.

We clip the following from the *American Issue*. What do you think about it?

A few weeks ago the writer, while crossing the bridge over the Pennsylvania R. R., two and one-half blocks from police headquarters, saw six boys, ranging from nine to fifteen years, drinking from a bucket of beer. Being inexperienced they were having quite a lot of trouble with the suds on top. One little fellow, while down on his knees drinking, stopped long enough to say that it was awful bitter, but he guessed he could drink it.

"LIFTING UP" THE FARMER.

Here is something more from the *Rural New-Yorker*:

Says a country clergyman of wide culture and experience: "I don't like to hear about 'uplift commissions' to country people. It sounds as though we others are so far above them that we have to reach down to pull them up, which is taking the wrong standpoint from the beginning."

To the above I give a hearty amen. Just a few days ago a very nice letter came, informing me that I had been recommended as one of a commission to visit foreign nations to investigate their system of making it easier for farmers to borrow money at low rates of interest. If I understand it, the government was to pay all expenses. Now, perhaps my opinion comes from a narrow point of view; but I do not believe the farmers of the United States, as a rule, need any such uplifting. So far as I know, they get all the money they need already, at very liberal rates of interest. There are other people in our nation who need uplifting vastly more than the farmers; and it seems the fellows who are continually inventing excuses to get some appointment to uplift the people, and have Uncle Samuel pay the expenses while they are abroad, do it to put on the style of millionaires, and have the farmers and laboring men foot the bill.

A KIND WORD FOR FRIEND TERRY; FRUIT SUPPERS, ETC.

Mr. Root:—For a long time I have been intending to write you a letter of appreciation. You recently published in GLEANINGS my letter to friend Terry, and I also want to express to you my gratitude for introducing your readers to Mr. Terry and his valuable teachings. It was through you I first learned of him, and it has proven a Godsend to me.

I am following Mr. Terry's advice almost to the letter; yet in one thing I am following you—that is, in regard to time of eating my meals. As I work for day's wages at present I find it impracticable to eat at Terry's meal hours, so I decided to do as you do. I eat breakfast at seven, dinner at noon, and then a lunch of fruit in the evening. I eat no supper. This plan has worked nicely with me, and is more convenient in my present circumstances.

I greatly enjoy all of your Home papers, and I trust you may live long to continue your battle for right. GLEANINGS is an ever welcome guest, and I admire it for its high moral tone.

JOSEPH H. PETERSON.

Ogden, Utah, Aug. 13.

Gleanings in Bee Culture

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Editorial

WHY DOESN'T THE AVERAGE PRODUCER GRADE
HIS COMB HONEY?

ONE large buyer complains that the average producer does not grade his comb honey at all, or else does it so poorly that the honey has to be graded again before it is fit to send out. If this is true, it is small wonder that he cannot get good prices. As a general thing the buyer charges for re-grading, at a price that will make it possible for the producer to make big wages if he would do it himself. Dealers, other things being equal, will buy continuously of the man who grades honestly and intelligently, so he knows every year what he is going to get when he orders a fancy, No. 1, or a choice.

We respectfully suggest that every beekeeper use the grading rules adopted by the Colorado State Beekeepers' Association.

UNIFORM GRADING RULES.

In our issue for July 1 we endorsed the grading rules adopted by the Colorado Beekeepers' Association. We knew nothing about what Editor Tyrrell was going to say on the subject, and he was ignorant of what we were to say; but apparently he was of the same mind as ourselves, as is evidenced by the *Beekeepers' Review* for July. We are now informed that the suggestions made by both of us are to be carried into effect by the National Beekeepers' Association appointing a committee of honey-producers and honey dealers to formulate a set of grading rules which it is hoped will be adopted by beekeepers of the East as well as of the West. Good! With some slight modifications the Colorado rules could be made to fit Eastern beekeepers.

SHIPPING BEES WITHOUT COMBS, AGAIN.

ON page 502, Aug. 15, we referred to the possibility of shipping bees long distances, even in car lots, without combs. For some years back we have made a practical success of shipping bees in pound and half-pound lots all over the United States. So far no obstacle has been encountered ex-

cept during extremely hot weather such as we have been having for the last few days. During such torrid spells some packages do not go through in the best of condition. The probabilities are that the express handlers pile other packages over the packages of bees, completely shutting off the air. When bees suffer from want of air, water seems to accomplish wonders. We are, therefore, during this week of exceedingly warm weather, trying the sending of packages of bees equipped with bottles of water. We shall be glad to give our readers the results of the experiments.

We sent three pounds of bees in one package to Dr. C. C. Miller, and the report came back promptly that only four of the bees were dead. We sent a like package to Dr. E. F. Phillips, of the Bureau of Entomology, Washington, while the weather was extremely warm, and the bees arrived there in bad condition. To-day, Sept. 10, is one of the hottest days we have ever known, and we are just sending another 3-lb. package to Dr. Phillips, with a bottle of water.

At this time of the year 3 lbs. will take up all the bees of a fair-sized colony. Assuming that brood-rearing has stopped, it would be possible to ship several hundred 3-lb. packages of bees, and put them on other sets of combs on arrival at destination. But we will not build any air castles until we see how our little air castles grow. More anon.

HONEY-CROP CONDITIONS.

FREQUENT rains over the country, especially east of the Mississippi, and the extremely warm weather, have stimulated the secretion of nectar, not only from belated white clover but from alsike and the second crop of red clover. There has been reported a fine fall flow in many sections from asters and goldenrod. Some reports from New York indicate a failure of buckwheat. A representative has been up through the Northwest in Wisconsin and Minnesota, and he reports there will be

more clover honey than was originally indicated.

In our last issue we stated that the opinion prevailed that there was a large amount of clover honey still held back. Later reports continue to confirm that view.

Apparently *extracted* honey has reached its high-water mark of price. We hope it will hold its own. This only goes to show that beekeepers have been running too much for extracted honey and not enough for comb. The hard logic of facts, too much extracted, and a scarcity of comb honey, should convince us that we should run more for comb honey. There never was a time in all our experience when No. 1 and fancy clover comb honey did not have a good market. We do not believe it is possible to produce too much of it any season.

The conditions for a honey crop next year were never more promising. Reports show that there is more white clover on the ground than has been known before for many years. Beekeepers should begin to make preparations to produce comb honey.

A DISTINGUISHED VISITOR AT THE HOME OF THE HONEYBEES; RUSSIA'S COMPLIMENT TO AMERICA.

We have just had the honor of a visit from Dr. Ivan Kablukov, Professor of Chemistry at the Royal University and Agricultural Institute of Moscow, Russia. He had been sent by his government to attend an international convention of chemists at Washington, D. C. As he was making bee culture more or less a study he was commissioned by his government to make us a call, which he did. He seemed very much delighted with every thing he saw, and more than once expressed his surprise at the immensity of the beekeeping industry in the United States, as evidenced by the buildings and general equipment that go to make up the plant known as the "Home of the Honeybees." He used his notebook freely, and doubtless will be able to transmit to his government a good deal of valuable information on the possibilities of beekeeping in Russia; for what has been done in the United States may be accomplished in that great country.

It will be remembered by some of our readers that in 1903 the Russian government also sent Mr. Abram Titoff to this country to study American beekeeping. He spent two full seasons here, and proved himself to be not only an alert but an efficient and intelligent workman among the bees. He later spent a couple of sea-

sons in California and then he went back to his own country in April, 1906. Now, according to Mr. Kablukov, he is inspector and teacher in bee culture in Kieff, Russia. We of America ought to be proud of the fact that a great country like Russia considers our methods worthy of adoption.

BEE EXHIBITS AND BEE SHOWS.

ALMOST every department of apiculture has been represented in books relating to bees except the science of making exhibits of bee products at fairs and shows. But even this field has now been very amply covered in a new work just out by Mr. Wm. Herrod, F.E.S., junior editor of the *British Bee Journal and Beekeepers' Record*, London, England. This little volume contains nearly 175 pages, with appropriate illustrations, especially of many prize-winning exhibits at the various shows in England. The author discusses the question of producing, preparing, and judging exhibits of bee products in a most thorough and painstaking way. While the manner of preparing these exhibits is somewhat different from the general scheme in vogue in the United States, yet any American reader will gain from it many helpful suggestions. "Mr. Herrod," in the language of Mr. Thos. Wm. Cowan, senior editor of the *British Bee Journal*, "has had more experience in managing the largest and most important shows in the country than any one else; and in this book we have the practical results of his experience clearly stated for the benefit of those desiring to produce and prepare exhibits with some expectation of gaining prizes."

The price of this book is not stated; but information can be secured by writing to the office of the *British Bee Journal*, 23 Bedford St., Strand, W. C., London, England.

A NEW BOOK ON BEEKEEPING BY PROF. H. A. SURFACE, OF THE DIVISION OF ZOOLOGY, DEPARTMENT OF AGRICULTURE OF PENNSYLVANIA, AT HARRISBURG.

A NEW book or bulletin on bees, by Prof. H. A. Surface, Economic Zoologist at Harrisburg, has just been received. The author, well known to our readers as one of the leading lights on beekeeping in his State, has come to be almost a national figure. A trained scientist, he not only keeps bees himself, but has for years been conducting a series of experiments in practical apiculture; and we believe we are quite within the truth when we say that he is not only authority in scientific apiculture but in practical apiculture as well.

He is an indefatigable worker. His correspondence is voluminous, for he never seems to tire in rendering helpful advice, not only in zoological matters but in telling the farmer and the fruit-grower how to grow more and better crops, as well as how to combat insect enemies with which they have to contend. We are glad, therefore, to recommend this bulletin on practical apiculture, because we believe its advice is sound and safe.

It contains over 70 pages of matter, with original illustrations by the author. This latter feature is quite unique in a work of this sort, because many modern bee books consist of a series of illustrations that seem to be more or less "common plunder." But Professor Surface has not borrowed a single cut. The whole work from beginning to end is distinctly original.

Nothing is stated as to how this book can be obtained; but we presume that any resident of Pennsylvania can secure it free of charge by making application to the Pennsylvania Department of Agriculture. Ask for Zoological Bulletin, Vol. II., No. 3, entitled "Beekeeping, by Prof. H. A. Surface." Persons living outside of Pennsylvania will probably have to pay a moderate fee. A letter addressed to the Department of Agriculture, Harrisburg, will doubtless bring the information.

A NEW GOVERNMENT BULLETIN ON COMB HONEY; HOW TO SOLVE THE SWARMING PROBLEM.

THERE has just come from the Bureau of Entomology, Farmers' Bulletin, No. 503, entitled "Comb Honey," by Geo. F. Demuth, Apicultural Assistant in the Bureau of Entomology. For several years Mr. Demuth was foul-brood inspector for Indiana. Prior to that time (and even afterward) he was one of the most successful producers of comb honey in the country. When we say "successful" we mean he made money at the business year after year. Now that the production of comb honey, because of difficulties, is getting to be neglected, a bulletin that can be obtained free for the asking, telling how one can overcome those difficulties and at the same time make money, is particularly opportune.

We have read this bulletin with considerable care, and we believe that, from every point of view, it is not only orthodox, but one of the best if not the best treatment of the subject we have ever seen. Some of the methods advocated are old, and some others are practically new.

A plain standard Langstroth hive with

the usual super equipment is illustrated and described; in fact, the paper is full of original illustrations showing hives and supers in a variety of combinations. Plain and beeway sections and their supers are clearly shown by line cuts. The merits of the extracting supers, combination supers (for both comb and extracted honey), and bee escapes are all carefully considered.

The manipulation of the bees to secure a crop is taken up very minutely.

The author's treatment of swarming deserves a most careful reading by every one of our subscribers. As swarming is one of the serious drawbacks if not the most serious in the production of comb honey, the man who contemplates producing this product will do well to learn how Mr. Demuth eliminates the nuisance. Perhaps not all will agree with him as to the theory of swarming. He says, "It is possible to manipulate all colonies before any swarming occurs so that most of them go through the honey flow without swarming, *thus eliminating the weekly examination.*" Italics ours. We are in position to know that he has done what he says he can, and that, too, without the purchase of any special appliances other than those in possession of beekeepers generally over the country. Now, then, listen: "Any manipulation for swarm control," he says, "whether applied after the colony has acquired the 'swarming fever' or applied to all colonies alike previous to the swarming season, is based upon the single principle—a temporary disturbance in the continuity of the daily emergence of brood." The italics in this case are those of the author. He goes on to describe the different methods for controlling a swarm, and says that by each one of these methods "the temporary disturbance in the continuity of brood is an important factor in the process."

For some time Dr. E. F. Phillips, in Charge of Apiculture at the Bureau, has been looking for a comb-honey man—one who is an expert in the practical treatment of bee diseases. That he made a wise selection will be agreed to when the beekeepers of the country come to review this bulletin. We predict that the entire edition will be exhausted in very short order; and any one who desires to secure a copy should speak at once, before the edition is all gone. This bulletin may be obtained free by addressing the Secretary of Agriculture or any Member of Congress. Ask for Bulletin 503, entitled "Comb Honey," by Geo. F. Demuth, Bureau of Entomology.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THAT EXTENSION wheelbarrow, p. 561, looks like a good thing. Might be, well, though, to shift the platform a foot or so forward. That would make it lighter to lift.

DR. KRAMER says, *Schweiz. Bztg.*, 217, that a young queen produces progeny of lighter color than an old one, and that a queen that is old but still vigorous is better to breed from than a young one.

MR. EDITOR, your objections to having honey stored below the brood-chamber are correct; and if sections are produced, there's another objection, the cappings will be badly darkened. I've tried it, p. 564.

S. E. MILLER, it is true that your method of numbering hives, p. 485, makes it "not necessary to walk around to the side or end of the hive" to see the number; but I'd rather save my head than my heels, and with plain tags I don't have to do any figuring as to what the number is. Besides, you probably didn't think of my cellaring bees, and your plan would hardly work in the cellar.

I. HOPKINS, p. 480, rightly says that what is called the Dines method of queen-rearing originated in Australia, leaving a little uncertainty as to when it was first published. Prior to any date he gives, it was mentioned in a *Straw*, April 15, 1909. The fact that little or nothing has been said about it in foreign journals since that time looks a little as if the plan had not panned out well.

PERCY ORTON is quite right, p. 334, in saying that European foul brood does not *always* injure a queen. A light case seems to have no effect on a queen. Ye editor seems to hold that European foul brood never injures a queen. I think E. W. Alexander held that it generally does. I believe that a severe case always injures a queen—not that she has the disease, but living in the foul atmosphere lowers her vitality, making her dull and inactive. [If it is true that European foul brood generally injures the queen, we confess our ignorance, and stand corrected.—ED.]

DR. HERING, RUNDSCHAUER of *Deutsche Bienenzucht*, says, page X., that he agrees with the views of the editor of *GLEANINGS* about wintering; but he objects to cellar wintering, for he thinks the free dry outdoor air, full of oxygen, the most favorable to the health of bees. Right you are, doctor; you can't emphasize too strongly the importance of good air. But our cellars

with furnaces may be kept so open that the air in them is just as good as outdoors. [The logic of the past season (and there is nothing like facts) argues pretty strongly for cellar wintering for extremely cold winters or very cold climates. A great deal depends on the kind of winter, the sort of exposure, whether the bees are wintered outdoors, and the kind of protection. If they are wintered indoors the kind of cellar, the amount of ventilation, and the humidity are factors that must be considered.—ED.]

T. B. TERRY says, *Practical Farmer*, 416, that honey is said to have the same wholesome sugar as in sweet fruits, "but it is in condensed form, so do not eat it clear or in large quantities for best results." He also says, "I consider choice butter a safe form of fat." Bro. Terry, didn't you forget to add the caution, "but the fat in butter is in condensed form, so do not eat it clear or in large quantities for best results"? Isn't there as much danger of eating butter clear as in large quantities of honey? Do you think there's half as much harm done to those who eat honey clear or in large quantities as the harm done to the thousands of poor ill-nourished children by never getting a taste of it? Long may you live to preach the gospel of keeping well.

A STRANGE SEASON this. It promised a dead failure, very little clover in sight, with feeding till last week in June, then a growth of clover coming from nowhere and increasing to a splendid flow with never a break till the fall flow began the last of August; and at this date, Aug. 29, the bees are piling in the honey from white clover, sweet clover, heatsease, and possibly other things. Others complain that cool and wet days have hindered gathering. Same here. At this very minute, 9 A. M., it is cool and cloudy—wait a minute. . . . Just been down to the yard, and hardly a bee flying. But I'm not complaining of the cold rainy days. They're a blessing—prolonged the season by just that much. Already I've taken 96 sections from each of four colonies, with perhaps 75 nearly finished sections on each hive, and more to follow. But with all that, mind you, the crop is short. The bees are not in the country. [Was there ever a year when clover held on so well? If so, we do not remember it. Even now, Sept. 1, it yields a little—almost enough to take care of the daily consumption for brood-rearing. As we have never had a fall flow to speak of, it comes in very handy.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The honey season about here began June 22 and closed July 20, lasting just four weeks—three weeks on clover and a week on basswood. We have a very good crop.

* * *

Thanks for C. A. Bunch's description on page 454, July 15, of a sweet-clover-seed stripper. I might have saved a lot of seed two years ago if I had known how; but I supposed it had to be drawn to a barn floor and thrashed like grain to get the seed.

* * *

That editorial, page 431, July 15, in regard to the use of glass in shipping-cases, and the statements by Mr. Hathaway, page 454, are quite to the point; and yet there are some markets that will call for it for a long time to come, I fear; and not only cases with glass but sections as well.

* * *

Mr. E. W. Peirce, page 409, July 1, hits the nail squarely on the head when he tells us that we can not expect the price of honey to go above a certain figure. This is most certainly true with the great mass of consumers; and yet there are some who will pay fancy prices for honey if they can not get it without doing so.

* * *

Louis H. Scholl gives us a "chunk" of bulk comb honey to think about, p. 434, July 15. Now, I would like to ask him frankly if he would advise the beekeepers of the North to put up bulk honey in tin or glass, and pour over it choice clover or linden honey that granulates quickly in our cool climate, and then ship to the cities to wait for customers. What is best for him may not be for us, although I have a friend here in Vermont who is quite enthusiastic over "bulk comb honey;" but he sells near home.

* * *

I am not exactly glad that Orel L. Hershiser has had foul brood among his bees, but that, having had it, he can tell his experience as he has done on page 299, May 15. European foul brood or American foul brood in the hands of an earnest or industrious beekeeper is not the scourge it is usually considered. I visited one town last year where every yard, so far as I know, was diseased, and it seemed a hopeless task to clean it up; yet by following a few simple directions these same yards to-day are almost free from disease. One yard of black bees where almost every colony was diseased,

I found on a recent visit entirely free, and as clean as one would care to see. But I see the finish of the careless farmer beekeeper in the near future, and the whole business left in the hands of those who will care for their bees.

* * *

J. L. Byer, p. 264, May 1, says that it is hard to explain why a cross between Italian and black bees should be called a hybrid. Well, my friend, I will tell you. When Italian bees were first introduced into this country, or before, they were described as most wonderful bees—very distinct from the common bee, and much larger than black bees. It was claimed, too, that they would work on red clover. The conclusion was drawn, that of course a cross, if it would cross with the common bee, must be a hybrid; and since that time we beekeepers have kept right on using the word in a wrong way when we knew better. Is there time for repentance? I think so. Why not call all the various crosses between the different breeds of bees "grades," as is done with cattle and sheep? Is a cross between a Carniolan and a black bee a hybrid? Then why should a cross between an Italian and some other breed be called a hybrid?

* * *

Mention is made, May 1, p. 273, by Dundas Todd, of hiving a swarm by first using a little smoke. It is a popular idea that smoking a colony of bees clustered on the branch of a tree is ticklish business, for smoke frightens them and then they will all leave for the woods. I myself used to be afraid that, if I smoked a cluster, the bees would immediately run away. I have now used smoke for this purpose for more than thirty years, and never yet have driven a swarm away. Smoke is even more helpful in making bees gentle when clustered than when in the hives. Besides, they often cluster in fence-corners or on branches where one can not readily dislodge them or saw off the limb, and smoke is exceedingly helpful in driving them to a place where they can more easily be hived.

Speaking of the value of ground cobs for packing, p. 259, May 1, the editor commends this material because of its capability of absorbing water. I had supposed that the value of packing material consisted in its ability to hold air. I don't want any water in the hives or packing, and there will be little in either if good provision has been made to get rid of it.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

On Aug. 27 I leave, by motor cycle, for a ten days' trip among the beekeepers of Southern California. While my time will be too limited to extend into the central and northern valleys this year, I hope to be able to cover that territory another season and get acquainted with the beekeepers and their methods.

* * *

Bees in many localities are doing very little, with little prospect of late nectar to stimulate breeding. I would not be surprised if the stock for wintering would be rather low, causing a shortage of bees for spring breeding. Some localities, however, continue to yield from various sources sufficient to keep a good amount of breeding going on and colonies strong.

* * *

The following dispatch is taken from the Redlands *Daily Review*, and dated at Los Angeles, Aug. 24:

That Geo. B. Larinan's bees ate 12 acres of strawberries, thus depriving the market of that amount of fruit, to his damage in the sum of \$1500, is the allegation in the complaint filed to-day in the superior court by T. Katoaka.

The suit is an action in trespass, Katoaka in his complaint alleging that the bees "in great numbers, flew, roamed, foraged, and trespassed upon the plaintiff's land without his consent, and ate up, injured, and destroyed the berries, being the growing thereon."

Katoaka's ranch is located in the A. B. Chapman rancho and Larinan's apiary of 200 hives is on adjoining property. In addition to demanding damages for the alleged destruction of his berries, the plaintiff seeks an injunction to prevent Larinan from maintaining his hives on contiguous land.

* * *

Five big meetings for beekeepers were scheduled for the summer as follows: Aug. 3, Dinuba; Aug. 12, Santa Paula; Aug. 14, Redlands; Aug. 19 and Sept. 6, Los Angeles. These meetings were held under the direction of Mr. J. B. Neff, representing the Agricultural Department of our State University, speakers being furnished by the State Association, from its membership. The boys were wide awake to the interests of beekeepers in general, and especially to the necessity of awakening a general interest among those who are not organized in counties or affiliated with the State association. The officers of the State Association have some fine plans laid, and expect to make the Association membership worth many times what it costs. The meeting at Dinuba was a big success, also at Santa Paula, while the one at Redlands was so far ahead of expectations that every

one was well pleased. Some old-timers were here, including Mr. T. O. Andrews, of Corona, and Mr. A. T. Wagner, of Imperial Co. A variety of subjects were on the program and all were handled with skill. Meetings outside of the big schedule are also being planned, one at Covina having already taken place. California beekeepers should be thankful that we have energetic men at the head of our State Association who lose no opportunity to advance our interests.

* * *

I am in receipt of a letter from Mr. M. E. Richter, editor of "Honey Plants of California," who is now located at Santiago, Chili. Mr. Richter writes me regarding the sage-worm, on which I commented in the Jan 15th issue. I quote from his letter: "You say you observed their abundance in off seasons when the sage is less thrifty, and that you are of the opinion that the weather has no influence thereon. My observations were made in Ventura and Santa Barbara counties, and, of course, during the flowering months of the sage. With many cloudy days during April and May the sage-worms were numerous; but with the first real warm weather in June there was a marked diminution in the worms, and they were invariably found on the north side of the whorls. Such seasons were, to be sure, off seasons, and the sages were not thrifty, for they lacked the necessary warm weather. With bright warm sunshine, however, in April and May, the worms were inconspicuous, and the season was good." In justice to Mr. Richter I have quoted the above, though my ideas are somewhat different from his. Some features of this season would seem to prove his contention, while others do not.

The sage-worm, or weevil, as I have previously styled them, were the worst, to my knowledge, this season, and the weather through April and part of May was surely very bad, which would bear out Mr. Richter's contention. On the other hand, the weather after May 12 was very warm and clear for a number of days just at the time this pest was doing its worst, and cutting the life out of the buttons. The season of 1905 was the coldest and most backward I have ever seen, yet there was not a weevil, but an enormous honey-yield, nearly all of which came after May 15. The following season, with bountiful rains and open spring weather, the weevil was quite plentiful, and sages yielded meagerly. I will make further observations next season.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

WHY SWARMS CLUSTER.

Mr. Anthony's theory, as related by the editor, page 502, Aug. 15, is a new one to me, and one in which I am not inclined to take much stock until further and more convincing proof is furnished. There may be something in it; but, according to the old saying, "one swallow does not make a summer." I hardly believe that the one instance alone shows that the killing of the remaining virgin in the parent hive had any thing to do with the return of the swarm from the tree-top. Swarms with virgins often do strange things, generally leaving for parts unknown as soon as they emerge from the hive. Yet, on the other hand, we have had such swarms hang about the yard for a day and even more, trying, perhaps, to gain entrance to some other colony. We have hived swarms with virgins after the bees had actually clustered instead of running away to the woods as might be expected, and then had them return to the old hive from which they had issued.

HONEY-CROP REPORTS INTERESTING.

It is strange how much more interesting the reports are when we have had an unfavorable season. This may be partly due to curiosity to see whether other beekeepers have fared better or worse. In one way the reports this year serve as a consolation, as they show that some others are faring no better. This year, for instance, we do not feel our loss so keenly, as there seems to be a rather short crop, taking the country as a whole; for, except in the case of a small portion of the country, there seems to be but a partial crop after all. We can be thankful, at least, that we need not fear having to feed our bees to carry them over until next year. It is true that there are a few localities where feeding will probably have to be done, since the rains delayed too long to help out in the fall.

Honey prices should rule a little better this year as a consequence of a general shortage of the crop. The Western honey seems to be a good deal more scarce than the Eastern. Some parts of the South have had good crops; but that in Texas is unusually short, especially since there has been an almost entire failure in Southwestern Texas, the main honey-producing section.

But since the fruit and syrups have been so plentiful the price of honey is not so very much higher after all, for honey is

still considered more as a luxury than as a necessity. This means that, as soon as the price of honey goes higher than usual, other things are substituted in its place, if they can be obtained at a reasonably fair price. Peaches and other fruits happened to be very plentiful this year, so that they have filled the demand for sweets to such an extent that less honey has been purchased than usual. The abundance of other fruits accounts for the large amount of preserves that have been put up; and these preserves, together with the large amount of sorghum syrup made this year, accounts for the smaller demand for honey. It will be remembered that fruits and syrups were more or less a failure last year, so that the demand for honey was far greater. However, in spite of all this the price of honey has gone up half a cent per pound or a little more over last year's prices, and it will be no trouble to sell all that has been produced before the end of the fall.

THE AUTOMOBILE A SIGN OF PROGRESSIVE BEEKEEPING.

One of the most pleasing indications of more progressive beekeeping is found in the constantly increasing use of automobiles by beekeepers. In itself, the ability to own an automobile usually indicates that a beekeeper is more or less progressive, or that he is possessed with progressive ideas at least. As a rule, the purpose of procuring an automobile is not only for use as a pleasure machine but more as a real business proposition. That the automobile is coming to be acknowledged more and more a much needed addition to the beekeeper's equipment, especially for real progressive beekeeping, is well known. The beekeepers who are taking advantage of this fact have the assurance that they are prepared to accomplish not only more work, but to do it better, while at the same time more pleasures can be enjoyed, both doing his work and while at leisure.

The automobile has come to stay, and the time is not far when a good "machine" can be obtained at a very reasonable price. Fortunately, the great number of different makes of automobiles, together with the wide variation in price, makes it very easy to make a selection best suited to the needs and the pocketbook of the beekeeper. Once purchased, there is no doubt an automobile will pay well, provided, of course, there is use for one.

Conversations with Doolittle

At Borodino, New York

SEPTEMBER PREPARATIONS FOR WINTER.

"When is it best to make preparations for winter? I have always waited till the advent of cold weather; but I was asked yesterday if I had my bees ready for winter yet, and this set me to thinking whether I had not been a little late in my work for the bees to winter to the best advantage."

"I have believed for some time that too many of us wait too late in the season before making the needed preparations for winter. Here at the North the wintering of bees is one of the great problems, if not the greatest; and to neglect it through ignorance or carelessness is little short of criminal."

"But you would not begin preparations as early as the middle of September, would you?"

"I certainly would. For the past twenty years I have often commenced the latter part of August. Years ago, at a convention an old beekeeper who had succeeded better than the most of us gave out this as the secret of his success: 'The time to begin preparing for a good honey flow is the season before.' I have always remembered this when about to put off something which needed immediate attention; and with a little modification the same statement applies very nicely to the preparation of colonies for wintering. And the best part of it is, such preparations place the bees in the best possible condition to be in readiness for the next year's honey flow."

"But you would not pack your bees for winter yet, would you? A good many of the supers are still on in my yard."

"The old advices in regard to getting ready for winter dealt almost wholly with packing, sufficiency of stores, ventilation, amount of entrance room, etc. Now, these things are necessary, but it is just as important to look after the age of queens, the proportion of young bees, and the number of bees in each colony. Can any of these be changed after winter sets in, or even after October, here in the North?"

"Sufficiency of good stores also should be included as another of the necessary preparations which should be looked after as early as this; and the month of August is much better unless one lives in a locality where a surplus yield can be expected from fall flowers. The mass of beekeepers usually defer these necessary winter preparations until late in the fall, when it is

too late to remedy any defects which are discovered at that time, regarding the general condition of the colony. I am well aware that stores may be given in November, and even in December, by way of frames of sealed honey. But this can not be done with the assurance that it will be conducive to as perfect wintering as would have been the case had such frames been given at this time, which allows a sufficient number of warm days for the bees to adjust such stores all about the cluster, as they always will do where they have the needed time.

"With all of these things attended to at the proper time, a condition is brought about which very largely measures the success in wintering, regardless of those things so much stress has been placed upon during the past. The fact remains that, if a colony is provided with a vigorous queen, plenty of young bees in proportion to the older ones, so that a cluster of suitable size is in control of the combs which contain ample stores of good quality within easy reach, many of the so-called essentials have very little to do with the safe wintering of such colonies. Therefore this work of preparation should begin immediately after the close of the honey harvest, to give the best results. But if, under special stress of circumstances, it can not be done then, should the weather continue favorable, fairly good results may be expected if all colonies receive the necessary attention prior to the first of October."

"What would you consider a vigorous queen?"

"One which has brood in the hive at the close of the honey flow to the amount of two to three frames full, with a good quantity of bees of all ages besides. Two frames of brood give about 12,000 bees, and three frames about 18,000. Now, if the queen retrenches at the close of the nectar flow, so that she can lay a little longer, then there will be perhaps 20,000 bees from this brood, all of which are sure to be young, and full of vitality for wintering purposes. And, in addition to these, there will be at least half as many more that emerged prior to the close of the harvest, and these will be pretty fair for winter so that the colony will contain not far from 30,000. Such a colony as this, in a ten-frame Langstroth hive, with a proper amount of suitable stores, insures it in a great measure for the next year's honey flow."

General Correspondence

CANDOR AMONG BEEMEN

Why Orders for Bees or Queens Should be Filled Promptly, or a Postal Sent Explaining why Delivery Can't be Made then, but Stating when they can be

BY LEWIS P. TANTON

In a recent issue of *GLEANINGS*, business candor was advocated, especially in relation to queen deliveries. The average purchaser, dealing with the different supply houses, can emphasize the necessity for this caution, in many instances. To save the loss of a valuable queen a frame or two of brood is wanted, or a queenless hive is in danger of extinction for want of a queen. An order is dispatched to a dealer who loudly advertises promptness. Not a word of explanation, not a line of reply, until you lose your patience, and, not unlikely, the bees you are trying to save, and then the article will come when you have no use for it. I have before me a letter saying, "I will send you two untested Italians Monday or Tuesday." Those queens were not mailed as promised; considerable loss and inconvenience are incurred, and I am left in ignorance as to when or if they will ever be sent, and thus am at a loss to know whether to order elsewhere or not.

Another dealer quoted this spring on bees, "up to 100 hives." I ordered one hive, to be shipped *at once*, by express, saying I wanted it immediately to get brood to save a weak colony, with a valuable queen. Over a fortnight after he received my order he replied, "I will ship next week." My queen died in that time, so I canceled the order.

Now, in both cases a post card, promptly sent, would have enabled me to order from other sources, in ample time to save my bees. I refrained from doing so, expecting those already ordered to arrive at any moment.

My experience is, no doubt, that of thousands all over the continent who have been similarly "stung." These dealers foolishly imagine that, by this process, they retain trade. The opposite is the case. The burnt beekeeper, like the burnt child, dreads fire. The slothful dealer may retain the proceeds of his first sale; but that transaction ends his business relations with that customer, most likely, forever.

This candor should always be exemplified in the description of the goods offered for sale. I once purchased several two and three frame nuclei from a dealer in Massachusetts. One of these, a three frame,

weighed about eighteen pounds in a light shipping-box, threw off a strong swarm, and yielded 110 lbs. surplus honey the first season. All this lot (8 nuclei) was nearly as good. At the same time I received a so-called full colony from another dealer, in a Langstroth hive. Bees, combs, and all weighed just 23 lbs.; had a hybrid queen; made no increase, and very little surplus honey. Which of those dealers do you think will command respect and hold trade? I have had dealings with the first of these for many years, and it is like doing business with a bank, for reliability and uniformity. One transaction settled me with the latter.

As a class there are no more upright people in the world than beekeepers. Those who are dishonest are, in reality, freaks, and scarce. Much that appears irregular is laziness or carelessness. The bee is the world-wide emblem of industrial nature. The beekeeper, to ensure success, must study and imitate his subject. Doing this brings him in closer touch with the operations of nature and nature's God. This contact develops diligence, frankness, and the higher ideals of honor in his interpretations of the responsibilities of business life. The one who fails to profit by the teachings of his busy exemplars will show an ill-kept apiary, a long list of dissatisfied clients, and all the evidence of a wasted business experience.

Do you notice that the most generous and public-spirited of beemen are of that class who study their subject the closest? Can you account for it in any better way than by ascribing it to the affinity of two great industrial natures, the man and the bee? The bee gives a full comb and full weight. Try them and you will find them prompt. Test them for integrity and you will find them candid and practical. Imitate them.

Charlottetown, P. E. I., June 17.

[We have seldom read an article that is more to the point than this one. It will bear careful reading on the part of all queen-breeders and those who have supplies of any sort to sell.

The best advertisement that any queen-breeder can put up for himself is promptness in filling orders; but no one can fill an order for a grade of queen or queens that he does not have. In that case, the only thing for him to do is to write to his customer at once, stating that he hasn't the grade called for, and ask for instructions. Very often a suggestion that he

can ship a higher or lower priced queen than was called for will meet with a ready response from the customer; but the main point is, he wants to know what to *depend* on, and he has a *right* to know. Mr. Tanton, in the article above, has given the reason *why* better than we can do it.

In a word, a queen-breeder should either fill the order promptly or send a card of explanation, telling when he can send. If a customer can not wait, he can cancel the order, and at the same time send elsewhere.

Perhaps in what we have said we may be throwing stones at our own glass house as well as that of the other fellow; but if so we will take the consequences.—ED.]

MOVING TWO CARLOADS OF BEES OVER A THOUSAND MILES

BY R. F. HOLTERMANN

Years of experience in moving bees to buckwheat as well as to favorable clover pastures and into winter quarters has given me a good deal of dearly bought information; but I have sometimes asked myself, "Is it worth while?" My friends sometimes say that I take the matter of moving bees too seriously; but my reply has always been that the only one who should undertake such work is one who looks upon this branch of beekeeping in a serious manner. Such a one must be willing to guard every point and make sure that every thing is right.

Last year I purchased a carload of bees in Michigan and brought them home with entire success. From past experience I have learned that there is a great difference between cars. For instance, some have that portion above the floor loose, so that it sways from side to side. Others have weak or uneven springs, so that while traveling they bump up and down continually, and, of course, disturb the bees unnecessarily.

On this trip I found that, in routing a car, the interests of the railway company and my own may not be the same. On this occasion, after about twenty-four hours, I was just about as far from Detroit as when I started, only on another line. If I had only known it, I could have gone by a much more direct and rapid route.

Early last winter I purchased a lot of colonies in eight and ten frame Langstroth hives from a beekeeper who lived in Missouri. The severe drouth, of last year had practically destroyed all the clover in his section, so that there was no prospect for a surplus white-honey flow.

Of several railway lines equally available we selected the one which had the reputation of being officered by men who were courteous, obliging, and desirous of considering their customers; namely, the Chicago, Milwaukee & St. Paul; and our experience proved entirely satisfactory, as we heard neither oaths nor unbecoming language from any of the railroad officials. In ordering the car I stipulated for one in good condition, and I also specified the way in which it should be sent. I had a promise from the district traffic manager that, if I would wire him ahead of my arrival, he would see that the cars were picked up at Chicago and sent on by the first through freight from that point, so we had the promise of fast freight service all through. The distance to be traveled was about six hundred miles to Chicago, and from that point home a little less than six hundred miles more. As the through freight which was to take our bees left about 9:00 P. M., we had to do most of the loading the night before, as I load only at night. This delay of nearly twenty-four hours is quite a serious matter in warm weather, when the temperature is between 80 and 90 degrees in the shade.

THE KIND OF HIVES WE HAD TO DEAL WITH.

In the lot of hives that we purchased, there were eight and ten frame hives, several odd-sized hives, and some box hives. The bees were Italians, hybrids, and blacks. Over about three-fifths of the colonies we had a shallow super on top, half of which was covered with wire screen and the rest with a thin board. Wire screen also covered the entrances.

About one-third of the hives had a portico fastened over the entrance, four inches deep and the width and height of the front of the hive. This portico had a wooden top and sides, and a wire-cloth front. Then about half way between the entrance and the top of the hive there were two air-holes, 1½ inches in diameter, in the front wall of the hive, for ventilation during swarming time. These odd-sized hives, and the box hives also, had a hole the same size at the back, which we made to enable us to keep the hives closed at the regular entrances after we brought them from the distant points in the country, the three nights previous to loading. This hole in the back was covered with wire screen the night we loaded, and it gave considerable air. The bees in hives so prepared did the best of all, but it may have been because they were blacks.

The box hives had a 1½-inch hole at the top, covered with wire screen, and the

whole hive bottom was covered with wire cloth, to which air was admitted by two-inch legs nailed to the sides of the box. It will thus be seen that we had quite a variety of hives to experiment with.

LOADING.

We decided to make sure not to reach our destination on Sunday. In the first place, I did not want to unload on Sunday, even if I could secure teams for the purpose, which was unlikely. In the second place, in hot weather it would be a serious matter to be obliged to leave the bees twenty-four hours in the car after landing—much more serious, in fact, than a similar confinement before the start.

The three nights before the night that we loaded, we spent in moving the bees in from different points in the country, as mentioned above, and on the fourth night we loaded both cars, with the exception of some thirty-five colonies, which we left until the next night, as we did not leave until 9:00, and we knew we should have time to get them in before the train pulled out.

We had engaged two 36-foot cars for the trip. Forty-foot cars are better, even if they do cost a little more; for with the former one loses much more room than the mere four feet difference in length. A 36-foot car should hold from 200 to 225 colonies in ten-frame hives fitted with shallow supers on top. We loaded the hives so as to allow a narrow passageway between the rows, the whole length of the car. The hives with top ventilation had a two-inch strip laid above them to keep the next tier of hives that distance from those below. Of course there were some exceptions to this because of the unevenness of the hives.

Strong colonies in hot weather, when they are to be confined for a considerable time, should not be packed solidly side by side, as they give off considerable heat through the hive wall—a matter of considerable importance. (The combs in the hive should run parallel with the sides of the hive.)

Those hives having front ventilation, as with the porticos, were not placed in straight rows end to end, but staggered and held apart on all sides by strips of lath in the right place. In case of upward ventilation, the hives were located more directly in line; but even then laths were used at the back to keep the bottom-board, brood-chamber, and super together and to keep the hives apart.

ON THE WAY.

As there were two of us (my son, William Ivar, and myself) we thought we could take turns at night watching the two

cars; but in this we were mistaken; for neither one of us saw the inside of the caboose. The piles of hives, although well braced each way, and securely fastened together with laths, gradually moved sidewise in the long fast trip, and we needed all the spare lath and the assortment of nails, hammer, and lantern that each car had, together with our own most careful watching, before we could call every thing safe, and then we did not dare to trust the hives alone. During the three nights on the road we had only snatches of sleep on top of a couple of bare boards or hive covers.

Our other equipment consisted of a barrel of water, a pail, and a dipper for sprinkling the bees when they rushed about their hives with their tongues sticking out through the screen. We also had cotton batting for quickly stopping any little opening that might allow bees to get out. The good wife of Mr. Diemer had provided a generous supply of lunch. One can not depend on getting meals on the way.

I have found it good policy to recognize the fact that, with a jar of honey or a little cash, a railway man may serve my interests without wronging his employer. I do not believe in trying to bribe a conductor to let one ride free. We had an understanding as to the transportation of ourselves, and in Canada the railway company, by order of the railway commission, has to give free transportation for one man with each car any way; but as the train is made up, if the car is near the center of a long line of cars the slack of the train results in a tremendous and unavoidable jar to the car. We made up train at Chicago, and again partially at Detroit; and in both instances, as well as at the starting point, we secured a place near the engine. Again, at the stop-overs the bees are likely to get restless. While traveling, the air is circulating freely, and the bees remain quiet; but if the car is at a standstill with the sun beating on one side, and perhaps a building close by to reflect it on the other, and to shut off the air, the care-taker has need to be anxious, and a dollar is nothing to pay to be put in a breezy position.

SPEED OF FAST FREIGHT TRAINS.

The run to Chicago took only about 31 hours. From that point we were transferred to the Chicago Belt Line, which took our two cars to the Wabash Line, on which the one run from there to Detroit took a little less than sixteen hours. There we made up train again and reached home about 10:00 P. M.—four days from the time we loaded the first bees, or three days from the time we started.

The temperature when we started was between 80 and 90, and the air very warm and sultry. However, the brood was uninjured; and so far as I could judge, the brood-chambers did not show any effects from the confinement. This was contrary to my expectations, and must have been due to our faithful and frequent watering. Practically no black bees or their crosses were dead; but among the strong Italian colonies we found quite a number of dead bees. I told Mr. Diemer before we left that I expected this, as I have always noticed that Italians, when excited and unable to get out of the hive, may turn and sting one another to death. However, this was not a serious loss, and the trip was a decided success. It was not long after the bees were unloaded and the hives opened that we sought a well-earned rest.

Brantford, Ontario, Canada.

BEEKEEPING AND SCHOOLTEACHING

BY B. D. ROBERTS

In view of the now inadequate wages of the country schoolteacher, and the short term of school, it becomes necessary for the great majority of pedagogues to seek summer employment. At present, it seems, farming is the chief resort of those who do not "take the road," canvassing. But farming can not be carried on successfully during vacation alone. Thus, with the capital which is necessary, and the hired help which is often insufficient, the net proceeds are greatly diminished. Again, farming is open only to the men, while a great many of our teachers are women.

To such a somewhat cultured class of men and women there is open no more gentlemanly, lucrative, and yet recreative occupation than beekeeping. It is true, attention is required in early spring; but by the proper use of Saturdays and evenings it is possible to get along till vacation.

Beekeeping offers the ideal field for exercise of the teacher's scientific and experimental tendencies, and can not but be a success when attempted with his usual energy. The small capital, the comparatively sure returns, the unlimited field and the pleasant out-of-doors work, would surely appeal to the teacher were his attention but once attracted, and yet in none of the teacher's periodicals have I seen the subject mentioned, even in an advertisement. Nor is this a one-sided proposition. Teachers, as a class, represent some of the best mental energy in our land, and, with their organization and co-operation, which would certainly be extended to their

vacation pursuits, could they once be interested, they would not be such a despicable addition to beedom. Through their joining the ranks, the honey market would not be loaded, but rather livened, for they could and would, since it would then be of personal interest to them, create a great demand for honey among the younger generation, and at the same time do their duty by expounding the truth concerning this paragon of sweetness.

Knox, Ind., Aug. 8.

BAD TASTE CAUSED BY DEAD BEES IN HONEY

BY BENJAMIN C. AUTEN

When raw fruit is put up in jars for exhibition purposes, the experts in charge of the work spend weeks testing and changing the solutions in which they are preserved, so as to get the density exactly the same as that of the enclosed juices of the fruit to be preserved. If it is too light in density, the fruit will burst; if too dense, it will shrivel. This is because, when two fluids of different densities are separated by a membrane, the two fluids interchange until the mixture each side is of the same density, the less dense fluid going through faster than the heavier one.

In an article by a prominent honey-producer, published two seasons ago, the writer did not deem it necessary, when extracting, to keep the robbing bees which fell into the vat constantly skimmed out, taking it for granted, I presume, that the bees were clean and would do no harm if taken out at the end of the day or at the close of the job. How clean bees may be is not necessary to consider. As soon as a bee is in the honey it begins to shrivel, this shriveling being due to the escape of the body fluids through the membranous walls of the insect into the honey; and, though honey is a powerful preservative, it can not prevent the occurrence of chemical changes in the animal matter (though it may prevent actual decay) which can be of no advantage to the honey as a food.

As a matter of fact, I have bought extracted honey which had a flavor almost exactly analogous to the odor which comes from decaying bees in hives in which they had frozen out. Is it not possible that here arises a part, at least, of the popular prejudice against extracted honey?

Carthage, Missouri.

[It is not always possible to prevent some bees from being in the honey, but it is surely best to skim them out several times a day, at least.—ED.]



FIG. 1.—A corner of A. B. Anthony's apiary near Sterling, Ill., showing his specially constructed hive.

THE ANTHONY "LEAF" HIVE

A Hive in which the Combs may be Thumbed over Like the Leaves of a Book, and yet Lifted out like the Loose Leaves of a Ledger, either from the Bottom or Top

BY H. H. ROOT

There are few beekeepers who, at one time or another, have not had visions of an ideal hive made according to their own notions; and manufacturers of bee supplies have had opportunities galore to buy

"patent rights" for making and selling these strange creations, destined to be of real value to no one. There are something over two thousand patents issued on hives, every one of which must have cost a hundred dollars at least; yet those that have really been of benefit to beekeepers in general can be counted probably on the fingers of one hand, without counting the thumb; therefore when we heard that Mr. A. B. Anthony, of Sterling, Ill., had invented a hive we were naturally inclined to believe



FIG. 2.—One of the hives turned over on end by means of the clamp, and the lower half of the brood-chamber with the bottom-board removed to allow the frames to swing from side to side like the leaves of a book.

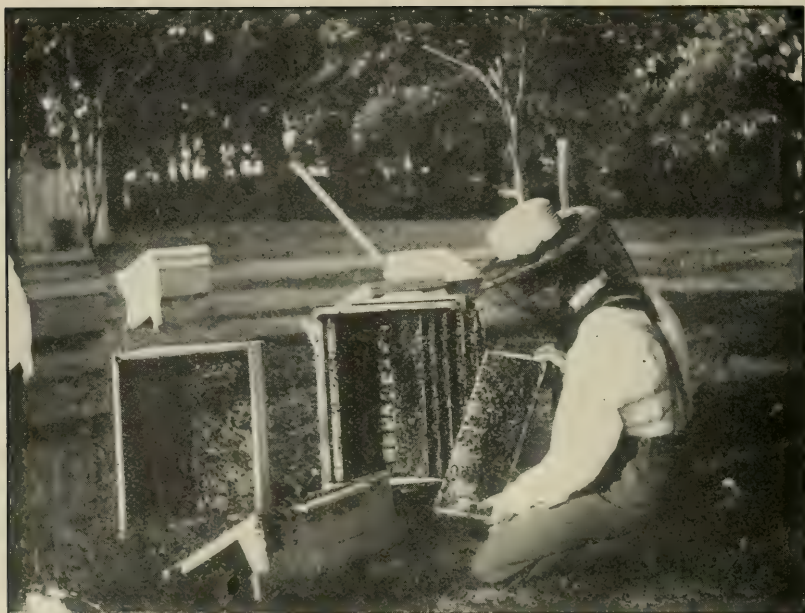


FIG. 3.—If necessary, any one of the frames may be lifted out without disturbing the rest.

that his hive, while it might be the hive of hives in his own eyes, was probably lacking in practicability from one standpoint or another; but after investigation we felt that it was worthy of being placed before the beekeepers for their approval or disapproval as the case might be.

For a good many years Mr. Anthony

has felt that the great drawback to modern beekeeping is the time and labor required in going through the present type of hives. He had found there was merit in keeping down queen-cells; and if he could get at them speedily, or in any way quickly ascertain what was going on in the brood-chamber, he could not only know the sit-



FIG. 4.—The frames may be handled from the top if desired, after the cover and supers are removed.

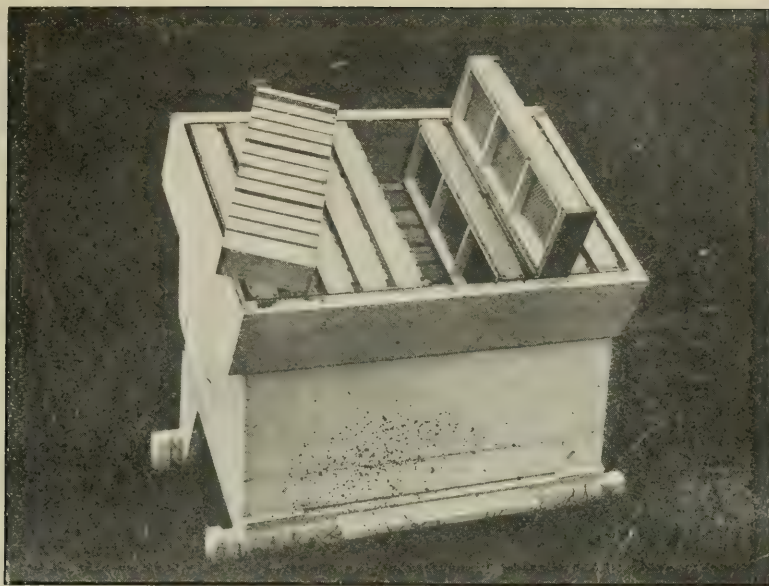


FIG. 5.—Cover removed, showing construction of super, wide frame for the sections, with separating slats nailed on one side, etc. The peculiar construction allows room for 33 sections in one super over the eight-frame hive.

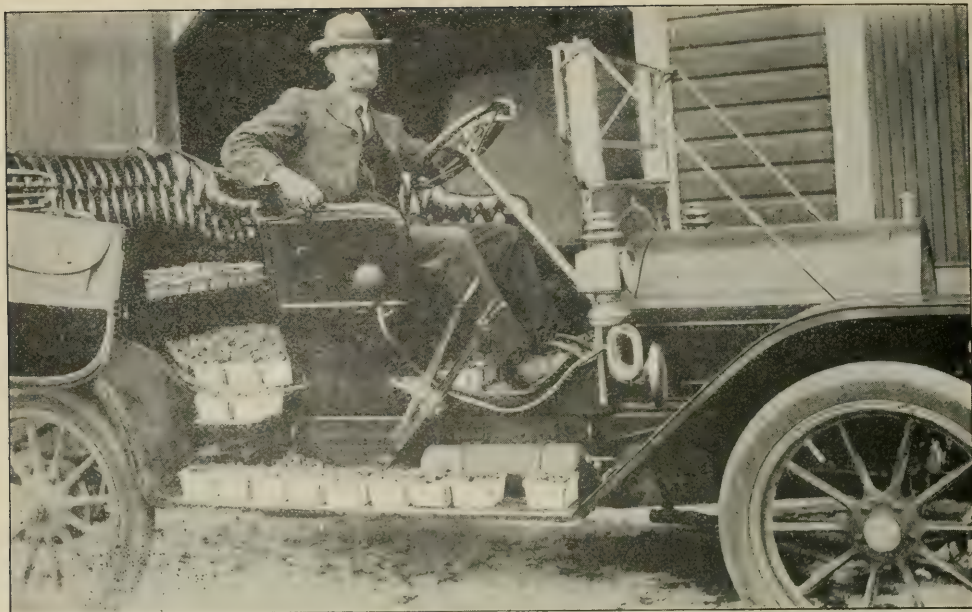
uation, but the better handle the swarming problem, and—"keep more bees."

With application to the problem for twenty-three years, Mr. Anthony finally perfected a modification of the Huber "leaf" hive in which he could turn the combs like the leaves of a book from one side to another, giving an opportunity to inspect each one thoroughly while at the same time, if occasion demanded, he could remove any comb just as easily as a leaf may be taken from the modern loose-leaf ledger. And he went still further, in that he adopted a construction that made it possible for him to remove the combs at will, either from the bottom of the brood-chamber or from the top in the regular way.

My first impression of his apiary of about one hundred colonies was that the hives had been located on insecure foundations, and that a strong wind had toppled most of them half over, where they remained, neither standing up nor lying down. On coming nearer the yard I made up my mind that Mr. Anthony had built his hives with steep floors, on the old theory that the moth-worms, however much against their will, if they fell off the combs would be unceremoniously rolled downhill out of the hive entrance. However, I discovered that some of the entrances (most of them in fact) were at the "top of the hill" rather than at the bottom. See Fig. 1, which shows a corner of the yard. Notice that the en-

trance of the hive at the extreme right is at the "bottom of the hill," while in case of the rest of the hives the bottom-board slants the other way, so that the entrances are at the top.

Take the hive in the foreground of Fig. 1 for example. Suppose one stood at the left of this hive and looked squarely at the end of it. He would manifestly observe that the end of the brood-chamber is a parallelogram, and that the corners are not right angles, as in case of the ordinary hive. Moreover, the brood-chamber case is made up of two halves, the ends of which are triangles as shown, instead of rectangles. Now, when Mr. Anthony desires to look over his brood-chamber, perhaps to find the queen, he uses a clamp somewhat similar in principle to the device described in *GLEANINGS* by F. H. Cyrenius, page 774, July 15, 1905. He quickly adjusts this clamp and tips the whole hive over without removing the cover or the super, and without disturbing the upper part of the hive at all. With the hive tipped over in this position resting on the clamp, it is the work of but a moment to remove the lower part of the brood-chamber case, to which the floor is attached, and lay it to one side as in Fig. 2. Then, without prying anything loose, the combs beginning at one side may be swung over, one by one, so that both sides are exposed. While this work is being done, there is no danger of killing



Selling strawberries; the way E. B. Rood manages near Bradentown, Florida. See page 591.

bees, nor sliding combs past each other so that bees are rolled and crushed, and thus infuriated; and, what is more noticeable, the moving of the combs is as quietly done as the turning of the leaves in a book, and the bees show no tendency to bunch up on the combs, so that, if one is looking for the queen, there is no great mass of bees collecting at any one point, which makes it difficult to see the combs at all, and almost impossible to locate the queen without using so much smoke as to cause the bees to stampede.

If desired, the bees may be brushed from both sides of every comb without taking the combs out of the hive body at all—that is, without detaching them, for there is plenty of room for the brush on either side of the combs as they are swung one by one from one side to the other.

If Mr. Anthony wishes to take a comb entirely out of the hive, he can do so more easily than he could take a comb from an ordinary hive (Fig. 3), and he can put the combs back just as easily. The combs can not be slid back and forth in the hive in bunches of twos or threes; but with this construction there is, perhaps, not as much need of it as with the ordinary hive. If one desires, the cover and supers may be removed and the combs lifted out from the top as in Fig. 4; but Mr. Anthony finds that there are so many advantages connected with the other way that he rarely gets at his combs from the top.

I found in this hive a new method for spacing brood-frames, in that they are hung off the center, causing them, through gravity, to attempt to swing beyond the perpendicular. They are prevented from doing so, however, because of pins on the lower inside ends of the brood-case against which they lean, and are spaced. This construction affords little chance for sticking with propolis, and there are no obstructions like nails and staples to dull an uncapping-knife or to hitch and catch in removing frames.

I was told more was obtained in this hive than expected; for with much manipulation of it in periods of dearth of honey, no time as yet had occasioned the use of a tent; and it looks reasonable that the keeping of brood-frames from exposure at their top sides, where the honey is stored, and the keeping of all frames compact would aid much toward the avoidance of robbing.

Mr. Anthony runs for comb honey almost exclusively. The few extracting-supers that he has are exactly like his brood-chamber. The comb-honey super is shown in Fig. 5. Instead of the regular section-holders, wide frames are used, according to the Hand method, which entirely surround the sections. The foundation is also put in by J. E. Hand's plan, in split sections. The slats forming the separators are nailed on one side of the wide frames, as shown by the frame at the left lying on top.

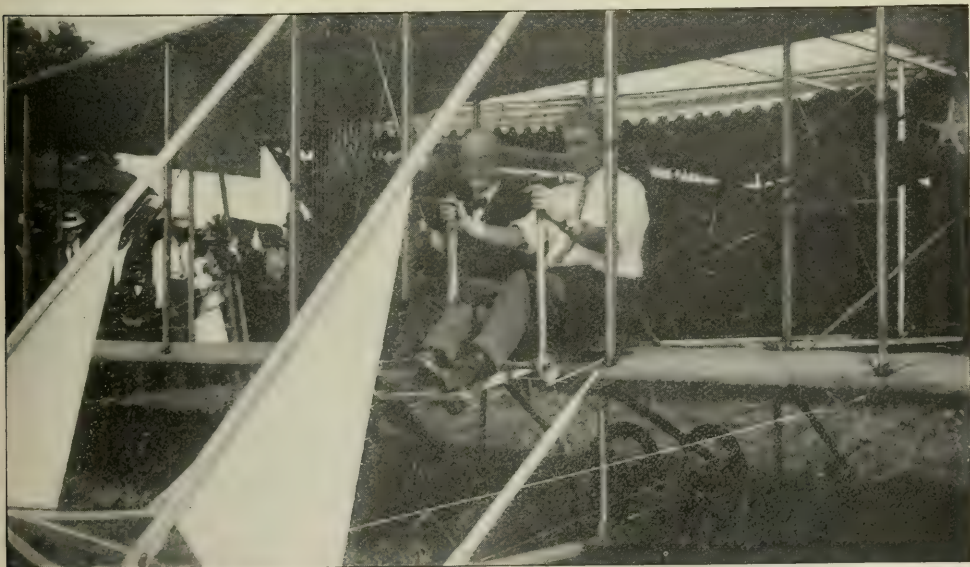
Owing to the fact that the top of the hive is not level, but slanting, the capacity of a ten-frame super is provided on the eight-frame hive. The construction of the wide frame and separator slats combined permit easy passage of the bees from one section to another at all points, so that one section is not divided from another by cross-cleats, thus separating the bees into small groups. The three sections are really more like one shallow extracting-frame, so far as the passage of the bees over and around them is concerned.

Notice that the super is a little longer than the hive. There is an object in this; for when the inside fixtures are removed, as in the fall, the empty supers are used as an outside winter case, three or more of them being slid down over the brood-chamber, making a tight double wall completely enclosing the hive itself, and leaving room for plenty of packing over the top of the brood-chamber.

It will be noted that one side of the super is considerably higher than the other. Instead of starting in the center, the bees always start on this upper side because it is warmer. At such times and when with cool weather there is a slow honey-flow and the super is not uniformly worked, it is the labor of but a moment to turn the super around with the other side at the top so that the bees will be sure to complete that. This accomplishes the same result as is brought about by shifting the sections from the outside to the center of an ordinary super to be completed. By

reason of fewer propolis contact points, finished frames may be removed to avoid discoloration, or empty substitutes be given when the near close of a honey-flow does not warrant the giving of a whole super.

In No. 5 the entrance is at the bottom of the brood-chamber. In a number of the other hives it is on the other side, as shown in some of the other illustrations. It is possible to have the entrance at either side, and it takes but a moment or two to change from one to the other. Mr. Anthony has been experimenting considerably with the two positions for the entrance, and has not entirely decided whether either position is best suited for all occasions; or whether one position is better at one time, and the other for some other time of the year. There are certain advantages in both; and it is probable that, at certain times of the year, one position would be preferable to the other. Of course, if the change were made the hive would be turned around, so that the entrance would always be in the same direction. Notice that the brood-frames, instead of being at right angles to the entrance, as in the ordinary hive, are parallel to it, as in the hive used by Mr. Allen Latham. The sections, moreover, are not parallel to the brood-combs, but lie crosswise. Another decided difference is that the bee-space, instead of being over the top-bars, is under the bottom-bars, so that there is no crushing of bees in case the brood-chamber or super is set down on any thing flat, helping also to



An up-to-date Wright Brothers flying-machine. The persons shown in the cut are your humble servant, A. I. Root, and Mr. Oscar Brindley, the aviator. See page 593.



A strip of buckwheat in A. I. Root's Florida home. See page 593.

keep surplus removals covered and protected from robbers, with the shifting found in all apiaries.

If more than two comb-honey supers were stacked upon the hives there would be danger that they would topple over;

but bees do scarcely any work in a comb-honey super three stories high, and, besides, such honey should be removed as soon as finished, to be nice and white. The extracting-super, instead of setting off at an angle like the comb-honey supers, stand vertical, so that any number of them can be stacked up.

The cover is a very substantial one, being made of $\frac{7}{8}$ boards halved together, so that they can come and go with the shrinking and swelling of the wood, and covered with tin painted on both sides.

It can not be denied that a hive of this pattern would enable any foul-brood inspector to make an examination very quickly; and now that disease is creeping over the country at such an astonishing rate, this feature alone would certainly be quite an advantage. But there are always some disadvantages connected with a radical departure from standard lines.

I may be wrong; but in my opinion there are two serious disadvantages. One is that such hives could not be used interchangeably with any other standard hive on the market, as the covers, bottom-boards, brood-frames, and, in fact, all the accessories are either odd-sized or odd-shaped. The second disadvantage is that these hives, owing to the greater number of parts, and the angular shapes, are not



A. I. Root's windmill, tank, and tower in Florida.



FIG. 1.—Mr. Rood's "lightning operator." The picture gives you a good glimpse of the celery when ready to be harvested.

only much more complicated and harder to put together, but more expensive. Just how much more expensive I can not say at this time. Mr. Anthony, however, says that all good things come to the front, and he thinks that progressive beekeepers with a future would be willing to pay for the added cost. The hive is fully patented, the claims covering both the design and details of construction.

SHORT CUTS FROM THE PRODUCER TO THE CONSUMER

BY A. I. ROOT

For several years past I have had quite a little to say to our readers in regard to Mr. E. B. Rood. I have told you something about how nicely he manages as superintendent of our Sunday-school on Sunday, and I have also told you quite a little about his skill in market gardening. He was one of the first to demonstrate that strawberries can be grown successfully in Manatee Co.; and now for many years he has been growing strawberries by the acre, more or less, and marketing all or nearly all in his own locality. I do not mean to say that he peddles them from house to house, but he runs them into towns every morning with his automobile, and gets them into the hands of

the people for dinner within an hour or two after they are picked from the vines. While his horses are busy plowing and cultivating in the fields, the automobile takes the berries quickly and safely to the grocer, where they are sold out and consumed, usually the very day they are picked. As I have explained, Mr. Rood also does considerable business in the way of selling real estate; and after the strawberries are unloaded he takes time to carry people who come from the North around the surrounding country, and through his own beautiful garden, straw-



FIG. 5.—A heap of boxes ready to be filled; also trimmers and packers at work.



FIG. 2.—Trimming the celery and packing it in boxes.

berries, celery, sweet and Irish potatoes, and other crops according to the season. As a matter of course, everybody does not succeed as my good neighbor Rood does; and some are so unkind as to intimate that his beautifully kept gardens are more to help him sell real estate than to make a profit on his crops; but as he is located just across the street from my own five acres, I think I have an opportunity to know something about what it costs him to keep his place in such beautiful trim and what he gets for the stuff he sells. And, by the way, it just

now occurs to me that this is the biggest kind of a chance for any of you to sell your real estate, if you happen to have more than you need, or are getting too old to take care of a farm. The best advertisement that can *possibly* be gotten up for a piece of land is to put on it a few acres, a single acre, or even a part of an acre, in "high-pressure" up-to-date gardening. The books and periodicals now devoted to rural industries will keep you posted as to the wonderful things being done along these lines in this year of 1912.

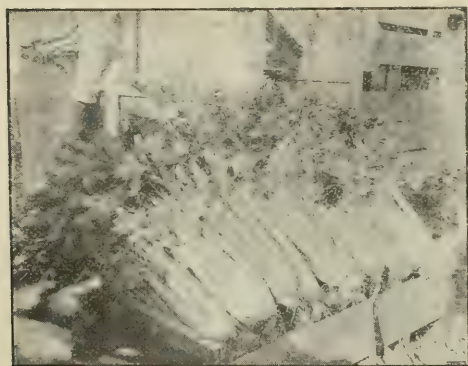


FIG. 3.—A glimpse at "short range" of the trimmed bunches ready to be packed in cases.



FIG. 4.—A glimpse of the celery rows and the stalks after cutting.

THE WRIGHT BROTHERS' FLYING MACHINE IN THE YEAR 1912. SEE P. 589

BY A. I. ROOT

Some time ago a few of the leading business men of Medina became enthusiastic over the idea of having a flying-machine exhibition on our fairground on the Fourth. Correspondence with the people who send out flying-machines brought out the fact that it would cost a good deal more money on the Fourth than later during fairtime. Indeed, the demand was so great for machines on that special day that the best arrangement our people could make would be \$1000 for a man and machine to make three trips—the man to remain in the air not less than 45 minutes all together. The question was whether our county of Medina would turn out in sufficient numbers at 25 cts. admission to make up the thousand dollars. But it transpired that something like 10,000 people were on hand to witness the flights. The flights were a perfect success in every respect. The operator handled his machine with almost the ease that a bird in the air flaps its wings. He went up something like a quarter of a mile, and went off over the country for two or three miles in different directions—executed a variety of sharp turns, dives, etc.

The machine, as you see, p. 589, is made to carry a passenger; but as it requires a longer space to get off the ground with a passenger than our fairground afforded, no attempt was made to carry a passenger. As I was close at hand, however, during all the flights and preliminaries, a request was made that I occupy the vacant seat while the machine was standing on the ground, and have a picture taken of myself and Mr. Brindley. Perhaps I should explain that the Wright Brothers manufacture the machines, but they have nothing to do with renting them out for fairtime, exhibitions, etc. All correspondence in regard to this matter should be directed to The Mercurial Aeroplane and Entertainment Co., 803 Central National Bank Building, St. Louis, Mo.

You will notice the operator has hold of two levers, besides other levers operated by the feet. As it would be inconvenient for him to take his watch out of his pocket, he has a pretty little timepiece strapped to his wrist, as you will notice.

I had a long talk with him during the day, and he entirely agrees with me in thinking that there is but little danger of loss of life if the instructions furnished by the Wright Brothers are strictly complied with. The deaths of at least a part of the

aviators have been because they became excited, and wanted to make a display that was evidently unsafe, or started out when the weather was unfavorable. Somewhere out west during a fair, I think it was, the aviator declared it was not safe to undertake the flight just then. But the crowd hooted and jeered, called him a coward, and said "the machine would not fly anyhow," etc. He was a young fellow, and finally, in desperation, he said he *would* fly, even if it broke his neck, and he did. He was killed almost instantly. That crowd was *guilty of murder*. In another case a young fellow undertook to exploit "sliding down hill on the air," at a breakneck speed, expecting to turn the machine up again when he neared the ground. This time, however, he had a heavier machine than he had ever operated before. He failed to calculate the consequences of a sudden change in direction and the momentum occasioned by the increased weight. The consequence was that the sticks of wood and wires of steel would not stand the shock. The machine was crushed, and he was killed. In one or two cases I have seen the operator smoke a cigarette before starting, to give him courage (?); but I am glad to say that Mr. Brindley, who sits by my side, never touches tobacco nor stimulants of any kind whatever. I know there is quite a mental strain on the aviator because on one occasion, owing to a little gust of wind at an inopportune moment, he failed to get off the ground. On the flight just before this, one of the wings touched a telephone wire. Had the wing been an inch or two closer to the wire the result would have been a smash-up and very likely death to the operator. Well, after this failure to get off the ground he went and lay down on a cot in the tent, and rested some fifteen or twenty minutes while his assistants got the machine back to the starting-point. God forbid that any more lives should be sacrificed through want of care, or a disposition to take risks in showing the wonderful things that this new vehicle or transporter is capable of.

SOME GLIMPSES OF OUR FLORIDA HOME SEE P. 590

BY A. I. ROOT

First, we will consider the windmill, purchased last fall of Sears, Roebuck & Co. Let me explain that, although we are in the region of artesian wells, these wells are quite expensive, and the water is not only sulphurous but hard; while the surface wells, say eight or ten feet deep, or even

less, are mostly soft water, as they are fed usually by the abundant rains, which pass very freely through the sandy soil. Some of these surface wells are only five or six feet deep, and seldom fail to furnish water, but in limited quantities. Many people have spoiled their soft-water wells by going deeper. Of course they get a more abundant flow by going lower, but the water usually becomes hard. On this account we decided to have a windmill with tank above. The well was made by putting down three pieces of sewerpipe, 24 inches in diameter, each piece being 30 inches in length, and so far we have had plenty of water that makes a suds of soap fully as good as rain water. In fact, Mrs. Root says it takes less soap with the well water than with the rain water; but this does not mean that the water is absolutely pure. It seems to contain some mineral that acts something like soda or borax, really helping the soap to dissolve and cleanse. This surface water, however, I feel sure, is not safe for drinking, although the people generally, I believe, drink it without any hesitation. I have always used rain water right from the clouds. If I could not get this I would boil well water before drinking it. I am pretty sure I am right in taking this stand, for there is quite a little typhoid fever at some seasons of the year in that region.

The windmill shown is 40 feet high, just a little above the pine trees, as you will notice. The ten-barrel tank is twenty feet from the ground. The whole apparatus, from Sears, Roebuck & Co., cost, I think, about \$85.00; but as I had a self-oiling attachment, and also an automatic arrangement to stop and start the tank when nearly full of water, the expense was a little over \$100. This latter arrangement makes the mill stop of itself when the water is within a few inches of the top of the tank. When the water is drawn off, the mill starts of its own accord, thus keeping the tank always full without supervision, but never running over. The self-oiling arrangement enables one to oil every part of the mill by simply pulling a wire; and the mill can be stopped at any time so that it will stand perfectly still. I insisted on this, because I was not willing to submit to a squealing and screeching windmill to annoy my neighbors. Wesley and myself put the tower and mill together; and with the aid of a pulley and tackle, and a couple of other colored men, we raised the tower and got it up quite easily. The anchor at each of the four corners was made of a common barrel sunk in the ground, and filled with concrete.

The bolts that hold each of the four corners go down into the ground four feet, with a plate of iron at the bottom anchored also in concrete. A pipe connected with this elevated tank goes through all of our poultry-yards, and furnishes drinking water, as I have explained. The ornamental wire fence of which you get a glimpse runs in front of our home on the street.

BUCKWHEAT IN FLORIDA.

The strip of cleared land forming a sort of lane that you see in the picture was put around our first acre in order to prevent forest fires, during a dry spell, from encroaching on our home. This buckwheat which you see grows without any fertilizer except the droppings from the poultry, and there is not very much of that. The plants in the foreground are the Japanese buckwheat; further down, the silverhull. In our Florida sand the Japanese comes up first, and was very much ahead of the silverhull all through the season.

The picture also gives you a glimpse of the way we make our fences to restrain the poultry. The lower strip is one-inch mesh and two feet wide, and goes down into the ground so as to prevent wild animals from digging under. We did not get it down quite deep enough, however, for we found holes where they got through in several places. I think that, if the netting were to go as much as six inches below the surface, there would be very little danger of animals digging under. For the protection of the fowls at night on their roost I would, however, go a little deeper, or, perhaps, better still, turn the lower edge out horizontally about six inches. You will notice the barbed wire where the inch netting and the two-inch meet. There is also a barbed-wire strip along on top of the post. This barbed wire prevents unruly cows from making their way through the netting. Down along the creek we have another barbed wire midway between the upper and lower strands.

In regard to growing buckwheat for grain as well as food for bees, the objection is that, where you get the ground sufficiently fertile to grow a crop, you can grow other things that will bring much more money than buckwheat, such as potatoes, celery, etc.

SOME GLIMPSES OF NEIGHBOR ROOD'S CELERY GROWING.

I have said so much about Mr. Rood's success with celery in past numbers that I shall need to explain only briefly the pictures.

On one of the rows you get a glimpse of the heavy paper that is now used to tie the plants up for bleaching. The colored

man in the picture ("lightning operator") is cutting off a plant just below the ground on a row where the paper covering has been removed.

The picture shows you colored men and women at work. These people go in gangs from one celery-field to another. They are well trained for the work, each one having his appointed task, so all goes along like clockwork.

By turning the pictures around, you can read the trademark on the ends of the boxes from Mr. Rood's plantation.

The material for boxes for celery, oranges, and other Florida crops, is prepared in great factories scattered all over Southern Florida. The ends of the boxes are nailed up by machinery, so that when they get on the ground all that has to be done is to nail on the thin boards so as to make a box. Here in the North I believe it is the custom to wash all celery, especially where it is grown in the muck, before packing. In Florida they say it ships very much better without wetting at all. The sandy soil shakes off so easily that there is very little left after shipment.

Permit me to say in closing that, like corn, potatoes, and almost every other crop, there are lots of fields of *poor* celery all over Florida—crops that will not sell for enough to pay the cost of growing; but I am glad to say, however, that the Florida people, like those here in the North, are, as a rule, progressive. Every year sees more and more *good* farming and less and less *poor* crops. The "boys' corn club" is doing a lot to get their fathers out of the old rut.

SHADOWS FROM THE PAST

BY D. M. MACDONALD.

"I can call shadows (or spirits) from the vasty deep," says one of Shakespeare's characters; and another replies, "But will they come?" Well, I will call up from the long gone by past a few "characters," dim and shadowy they may be, but interesting withal, and perhaps they may teach even moderns some useful and instructive lessons in bee lore.

Thomas Hill issued the first book on bees in the English language, "A Profitable Instruction on the Perfect Ordering of Bees," in 1579. It contained little from his own pen, being mostly translations from the works of ancient writers, from Aristotle and Virgil down. But it marked an epoch in bee literature. American beekeepers might note the following: "To check swarming, skilful practicers will cut

off the king's wings, as then they will not attempt to fly far abroad." "Cut out," he advises, "all corrupt combs, and, if necessary, feed bees to enable them to renew the loss." "A beekeeper should entreat his bees by a gentle manner," a good equivalent to our modern advice, "handle gently." These early hives were made much as they were in America in comparatively recent times. "Take your hives of the wood of a hollow tree or of light boards made square"—the counterpart of your bee-gums and box hives. "In all cleanliness and sweetness, bees are much delighted," reads as if quite modern. "Gilding" was a process almost equivalent to depriving bees of their surplus takes, leaving the brood-nest intact. And they used an intimidant to aid in the process: "Put under the hives some linen rags, making a *smoake*." Hill was a good judge of honey. Here is his first prize sample: "It must be very clear, of a golden colour, and of a pleasant and sweet taste, cleaving somewhat, but not stiffening or waxing hard together."

What matters it that master Hill calls the queen a king? that he tells us bees take "45 days" to hatch? that they "sit on their young like as a hen doth on her eggs?" that bees "marvellously stay and guide themselves by carrying small stones in their legs?" that "drones are imperfect bees who have lost their sting?" and many other "whimsies"? Hill had grit in him, and gave us a *book*, "a thing rare and seldom seen in the English tongue."

Edward Southern "brak the ice," as Purchas tells us—that is, he gave us the first genuine English bee book, produced from the author's own experience, for he wrote from among the bees. He was, indeed, a practical beekeeper. His advice to beginners shows this: "Goe orderly to thy bees and thou shalt finde them gentle as sheepe." He had no belief in the efficacy of "tanging" with a basin, pot, kettle, or frying-pan. Cleanliness he rigidly inculcated. He was an advocate of powerful colonies, and believed in having all "lustie and stronge." When stung, he advises, "Take a sage leafe, cabbage leafe, or a piece of dock leafe; rub it in, and the paine will soon cease."

John Levett, 1600, claims to have had an "unparalleled experience," and that he can "resolve all doubts whatsoever." He had the true beekeeper's instinct, as he considered working among his bees more a pleasure and delight than any "irksome or laboursome toyle." He writes for country people, and especially the women of the

household, who were then the active bee-keepers of the family. He loved a bee-talk as he loved nothing else, and declares, "to talk of bees to those who love them not is like music played out of time, and harsh, or a pleasant tale to the sorrowful." He joined small lots, "as when there is a great companie they generate heat better, and therefore thrive better." The chief source of honey he looked on as a thick and gummy dew made by the influence of the "starres," and falling from heaven. He believed in a "master-bee," and tells us of the "generall guard of souldiers" attending him, and also of "commanders, generals, lieutenant-generalls, marshalls, sergeant-majors, colonells, and captains." The master-bee had a sting, but more for ornament than use. He practiced driving bees. His manner of killing off these bees was a barbarous one, being no other than crushing them to death beneath a broad board.

Rev. Charles Butler (1609) was one of the princes of beedom, and his work is a classic for all time. He himself predicted that it would "travel to the most remote parts," and this has been literally fulfilled, as no work is more sought after than the scholarly "Feminine Monarchy." Purchas said of it, "Butler wrote singularly wel," and I fully indorse the statement. The very title of the book shows he was ahead of his generation. If he did not fully realize that the queen bee is the mother of the hive, he tells us plainly that young queens were begotten of old ones, and that the drones "serve for generation and for the preservation of their sweet kind." He was thus at least on the verge of comparatively modern discoveries. He used a "hood of boultering," the original of our bee-veil. He taught that the best time to manipulate is when the bees are out in the fields; and he advised handling them gently. "For cleanliness and neatness," he says, "they are a mirror to the finest dames." Further, "Among all the creatures God hath made for the use and service of man, in respect of great profit with little cost, bees are the most to be admired; for with little care which need be no hindrance to business, but, rather, a delightful recreation, they bring in a store of sweets fit for meat and medicine." Of this "quintessence of all sweetness," he has much to say. The best prize samples should be "clear, odoriferous, yellow like pale gold, sharp sweet or pleasant to the taste, and of mean consistency." All honey, however, was not like this. "Some make one work of all—pounding and compound-

ing honey, wax, bees, and works all together; then with a press they violently wring out all that will run."

In 1618 William Lawson published "Country Housewives' Garden with the Husbandry of Bees, being the Experience of 48 Years' Labour among the Bees." He counts no orchard or garden complete without some hives of bees; and no housewife is a good one "that wanteth bees and is not skilful in handling them. They yield, rightly managed, great pleasure and large profit. Stings are not to be apprehended, because they know their keeper, who ought to be familiar with them." Many use smoke in handling bees, but he utterly disliked its application. Ringing in time of swarming is a "meare fancy." Violent handling of them is "simply evill." Bees, of all creatures, love cleanliness and peace; therefore handle them leisurely and quietly and they will not hurt. A drone-trap was used; and for mice, then very troublesome, the best remedies are "cats, rats, traps, bane, and watching. Contract entrance to exclude such vermine; but do not stop up close, as bees require a flight in winter."

"The profit of bees is great." He does not give the price of honey; but it must have been high, for he asserts that forty stocks will yield more profit than forty acres of ground. The sisterhood should be interested in Lawson's work, as it was written specially for the gentle sex, and he all but asserts that a good "bee woman" must be a good housewife.

Following chronologically we next come to Richard Remnant, 1637, who insists on the "great profits" to be derived from bees. Apparently he found the pursuit a paying one, as he asserts he bought and sold to the value of a thousand pounds a year. In uniting and handling bees Remnant used smoke. He unhesitatingly sets the queen down as a female and the drone as a male. He, however, confounded pollen and wax, as most writers did long after his time. "The wax is gathered of the flowers or bloomes." Pollen was then looked on as "animable matter" from whence the bees were generated. The bees gathered it, carried into the cells, whence the king dealt with it, and it became a "maggot" out of which workers were evolved. He fed by cutting out a comb from a full hive over-supplied, and inserting it in a poor hive. "In all these operations, still the bees with smoke (but not too much). Be not fearful, but patient and gentle, and in time with experience you will become readie in all these things," which is sage advice even to-day.

Remnant's book is specially interesting because it contains the first precise reference to that fell scourge, foul brood. Here is the extract: "Some putrefaction sticks fast in the cells, and is of a brown or deepish yellow colour, which should have been brood, but came not to perfection. Other putrefaction looketh somewhat white, and was a brood, but afterwards took cold, and so was chilled, and perished before it came to maturitie." Chilled brood and foul brood!

Banff, Scotland.

MORE ABOUT THE IMPERIAL COUNTY ORDINANCE

Two Other Counties Have it in Force

BY A. F. WAGNER

As you have given Mr. J. E. Ross, of Brawley, Cal., space in your paper for his article in the July 15th number I think it no more than fair that you accord me the same privilege.

In the first place, I want to eliminate all personality. In order to enlighten the readers of GLEANINGS I will give them a brief history of the situation here.

In 1909, when I was appointed inspector of apiaries this county contained somewhere in the neighborhood of 5000 colonies of bees. Bees were being brought in from other parts of the State, without any inspection. In some cases the shipments were accompanied with a certificate where the inspector of apiaries never opened a hive. This was done in order to cover the State law, I understand.

When I explained this situation to the beekeepers a committee went before the Board of Supervisors and asked for some protection. The supervisors suggested that I might hold them up at Imperial Junction for inspection. Imperial Junction is no place to inspect bees, it being away from the water and on the barren desert. No bees were inspected there.

During the year 1911 several shipments of bees were made into this county, and through these shipments more foul brood was introduced. In September, 1911, I met Mr. Pleasants, the inspector of apiaries of Orange Co. I explained the situation briefly to him. He told me Orange Co. had an ordinance that would suit our case, and said he would send me a copy of it. I handed the Imperial Valley Beekeepers' Association one of them, not for endorsement, as Mr. Ross would have you believe, as we were not ready for that then, but for their consideration. At the close of

the meeting they appointed me a committee of one to secure signers to a petition to be presented to the Board of Supervisors. As you no doubt know, this is a large county; and for me to see every beeman and obtain his signature would take considerable time—in fact, more time than I could spare—so I sent each beeman a card, asking him to attend a meeting, stating the purpose. At this meeting the whole county was represented, and a committee of three was appointed to obtain signers to a petition to be presented to the Board of Supervisors for the enactment of this ordinance. Eighteen signed this petition at this meeting. When the petition was presented to the Board it contained 48 names. This petition is on file at the County Clerk's office now, and open for inspection. The Board passed this ordinance, and it became a law Feb. 1, 1912, and is in force now.

WHAT WERE THE RESULTS?

Upon its passage I immediately notified all the inspectors, and also general freight agent of the railroad companies. In the latter part of February a carload of bees was shipped into Imperial from Los Angeles Co. Working under Sec. 7 of said ordinance, I asked that these bees be moved to Imperial Junction, or three miles from any other yard, and be held thirty days, not to exceed sixty days, in quarantine, or to remove them from the county. I am convinced that I was fully within the bounds of the law. This was done for two reasons—first, an irregular certificate, not giving name of proper owner and date of inspection; and, second, shipped from a district where European foul brood was known to exist. Immediately a great howl was raised—not from beemen, however. All kinds of tactics were resorted to, from threats of personal injury to large suits of damage. I was determined, however, to test the ordinance on this case. Seeing that I could not be bribed nor coerced, while I was away (during the night) influence was brought to bear somehow on the supervisor of that district so that he himself took the responsibility of having the bees released, and the District Attorney asked me to work under Sec. 2 of said ordinance. Now, I am no attorney at law, and do not pretend to understand all the ordinance; but I surely think the framers of this ordinance had legal advice, as three counties now have such ordinance in force—namely, Orange, Riverside, and Imperial. I also understand several other counties have similar ordinances. So far as I know, it has never been tested in court. So far

as using it as a bluff, I will say that, out of four carloads of bees that were shipped into the county, not one case of foul brood was found.

I have the highest respect for the inspectors of apiaries of Riverside, Los Angeles, Orange, and San Diego counties; and this ordinance was not directed against them as regards the 2000 colonies kept out. I am satisfied they were not able to get a clean bill of health from the above inspectors.

I do not care to take up any more of your space; but as to Mr. Ross' accusation was merely a local affair, and I am satisfied to leave the question to the beekeepers of this county.

El Centro, Cal.

REPORT OF THE MISSOURI STATE CONVENTION

BY J. F. DIEMER, SEC.

The tenth annual convention of the Missouri State Beekeepers' Association was called to order at 4 o'clock P. M., August 1, by President J. W. Rouse, at his home in Mexico, Mo.

After prayer by the president, the usual formalities incident to such meetings were proceeded with, after which the remainder of this session was occupied with a general discussion of ways and means of increasing the membership and securing the co-operation and interest of the beekeepers of the State in the work of the association. Excellent and helpful remarks were made by J. W. Rouse; T. C. Wilson, Sec. State Board of Agriculture, Columbia, Mo.; C. P. Dadant, Pres. Illinois State Association, Hamilton, Ill.; R. A. Holekamp, St. Louis; M. E. Darby, Springfield, Mo.; W. L. Kent, and E. C. S. Miller, Mexico; E. B. Gladish, Higginsville; Irving F. Long, Marceline, Mo.; J. F. Sandker, Woodlandville, Mo., and others.

The evening session was called to order at 8 at the same place; and on motion it was ordered that articles 4 and 5 of the constitution be changed so that fifty cents should hereafter be the annual dues to the association instead of one dollar.

The matter of offering premiums at fairs for apiarian products was taken up and discussed; and it being shown by the president of the Illinois State Association that the following States offer the following amounts viz., Minnesota, \$1062; Wisconsin, \$500; Oklahoma, \$311; Illinois, \$453; Kansas, \$290; Indiana, \$248, and Missouri \$148, the secretary was instructed to investigate and find out what could be

done toward increasing the amount of premiums offered in Missouri.

On motion the secretary was instructed to take up the matter of the advisability and cost of incorporating the State Association.

On motion the secretary was instructed to cast the entire vote for the following as officers of the Association for the ensuing year: President, J. W. Rouse; Vice-president, R. A. Holekamp; Secretary-Treasurer, J. F. Diemer.

The third session was called to order at 9 o'clock on the morning of August 2, and many matters of interest were discussed, chief of which was the question as to whether our association should adopt the constitution and by-laws of the National Beekeepers' Association. Very little enthusiasm was shown for it by the members, and considerable doubt existed as to the advisability; but on final vote it was adopted.

M. E. Darby, State Inspector of Apiaries, made a report of his work. He made very emphatic the possibilities and impossibilities under the present foul-brood law, with the present limited facilities and means at his command, and convinced his hearers that it would be impossible for one man to do the work required to be done to stamp out foul brood, which exists in nearly every one of the 114 counties of the State.

At noon the convention adjourned.

How to Transfer and When

In my small apiary I have four old-time gums which I wish to replace with modern hives. What is the best way to move the bees from the old hive into the new one? As all of my bees are hybrids, I wish to get Italian queens.

Tivoli, Tex., June 26.

W. C. WIESE.

[The very best time of year to transfer is in the spring during fruit bloom, for at that time enough honey will be coming in to prevent robbing, and the bees will have a chance to build up again for their main honey-flow. Colonies can be transferred at any time of the year, although it is, of course, well to do the work early. But if a time is selected when the honey is coming in so that there will be no tendency to rob, it would be entirely feasible to do the work almost any day during the season, providing it is not cold enough to chill the brood, while the work is in progress.]

We always advise the Heddon short method of transferring bees, described in our ABC and XYZ of Bee Culture.

It is pretty late to transfer this year; but still if you are careful to select a time just before the main honey-flow is over, we believe you can transfer all right and get the bees built up in good shape for winter. The fact that your winters are not as severe as ours up here makes it possible for you to transfer almost any time during the summer. You can requenee at the same time you transfer by destroying the old queen as she runs with the rest of the bees into the new hive, which you can do very easily, as it is not at all difficult to find her as she runs in, especially if you spread a sheet in front of the hive on which to shake the bees, allowing them to run up into the new hive. After destroying the old queen you can introduce the new one by the regular cage plan described on the covers of the mailing-cages.—Ed.]

Heads of Grain from Different Fields

Answers to Questions from a Beginner

1. Are supers left on all winter?
2. If the life of a bee is eight weeks, how can they live all winter?
3. Will chickens eat bees?
4. What are bees doing around water?
5. Must all hives be fed a month before they winter? When should this begin in the vicinity of Philadelphia?
6. What is the best method for wintering bees in double-walled (Buckeye) hives?
7. Should only eight frames be left in a hive of ten frames for winter? What should be done with the remaining frames if they contain brood? Logan, Pa., July 9.

BEGINNER.

1. Supers should not be left on the hive during the winter. Comb-honey supers especially should be removed as soon as possible after the honey is capped over. With extracting supers it does not make so much difference; but they should all be removed before cold weather sets in.

2. Bees live longer than eight weeks when they are not working.

3. It has been said chickens will often eat bees, but we have never seen them. In any event we are convinced that they rarely do. A number have reported that their chickens ate drones only.

4. Bees require considerable water, especially when rearing brood; and if there is no water near the apiary an artificial watering-place should be provided. An old tub is satisfactory, although you should use a float or chips to prevent drowning.

5. It depends upon circumstances somewhat as to whether colonies need feeding in the fall; but if there is no honey-flow in the late summer to keep the queen laying so that there will be enough young bees to go into winter quarters, feeding should be resorted to. Some feed early in the fall, while others wait and feed thick syrup just before the cold weather comes on. A combination of both plans is often to be recommended.

6. It is impossible here to go into a full discussion of wintering, and we would refer you therefore to our booklet, *The Buckeye Beehive*. Make sure, however, to have good strong clusters made up of young bees largely. Also make sure that the stores are ample, and well arranged in the hive.

7. A very large colony might occupy the full ten frames; but it would be better to use a chaff division-board and only eight frames if the colony is not quite as strong as it should be. Late in the fall there is very little or no brood, and you can easily take out a couple of combs that contain no brood and the least honey to make room for it.—Ed.]

Trouble with Twin Mating Nuclei; Why do the Bees Ball their Queens?

You would oblige me greatly by giving me a little advice in connection with operating the twin nuclei. No doubt your men have found out by experience when is the best time of day to work with the little clusters. I find they are repeatedly balling the queen when opened during the afternoon; and in accordance with advice in the A B C book I made them up with bees from a black colony from another yard. These same black bees are most ferocious, and sting the hands and wrists continually. I don't use the smoker; but it is almost impossible to get along without some smoke. They won't let your hands come near the frames. Of course, as yet I haven't had the feeders in the hives, for I haven't had them. Perhaps that will keep them more content. Gloves make it almost impossible to handle such small frames well.

Are the ventilating holes supposed to be left uncovered by the tin? The bees from the other half of the hive are always poking into the next compartment, and no doubt worry the inmates—especially so with the extra strong nuclei. They spend half their time outside the entrance, bunched.

Kirk's Ferry, Que

H. H. SELWYN.

[Your difficulty, we think, is because you used a bad strain of black bees. If you had used gentle Italians or Carniolans you ought not to have had any trouble, providing you did not put too many bees in each side. We aim to put

about four ounces of bees in each side; that is, not much more than 1200 individuals. We should judge from what you write that you are putting too many bees on a side. We have no trouble, or very little, any way, from bees balling the queen, no matter what time of day they are opened.

The ventilating holes on the end covered with metal are simply to give ventilation. Ordinarily they should be kept closed, except in extremely hot weather, and always when robbers are inclined to cause trouble.

Another solution of your difficulty is that your covers do not fit tightly on top of the nuclei. If the bees can get from one side to the other you will have balling, no matter what time of day you open up the boxes of bees. We use an enamel cloth tacked to the center division board in such a way that one side or the other can be folded back and expose only the bees of the one side. Of course, it sometimes happens that the one side is queenless and the other has a laying queen, so that the bees of the queenless side will go over to the side that has a queen. You will generally find that the strength of one side or the other will vary according to whether it is queenless or has a queen that is laying.

We do not find any instructions anywhere in the A B C and X Y Z of Bee Culture recommending the use of black bees for the mating nuclei. You ought to use something that is pure stock—either pure Italians of a gentle strain or pure Carniolans that are equally gentle, or, possibly, Caucasians. The ordinary black bees or hybrids of this country are too cross for this purpose, and we should judge the black bees you refer to must be an exceptionally cross strain with some yellow blood in them; for bees that sting as you describe are not fit for twin mating nuclei. We would brimstone them, and start with a fresh lot of gentle bees; for you never can succeed with bees as cross as that.

You can operate twin mating nuclei any time of day when it is warm enough, when robbing is not allowed to get started. When there is a dearth of honey on we work them under cages.—Ed.]

A Honey-bound Brood-nest; How to Let the Bees into the Super

The brood-cells of our colony are nearly filled with honey, and it does not look as though there were enough empty ones to accommodate very many eggs. We presume this is due a good deal to the fact that the hive was without a queen for some time, and the bees have been filling all the cells in the lower section. They have not started to work at all in the super containing the small sections.

Cleveland, O.

A. O. S. ALLAN.

[The condition in the colony may work out all right, although there is danger that your brood-chamber may become honey-clogged; that is, the bees will get so in the habit of storing in the brood-combs that they will keep on and on, and the queen will be practically forced to quit laying. At the same time, the bees will refuse to enter the supers. To prevent the condition get some partially filled sections of honey, and place in the super as baits to entice the bees up. See reply to Bigelow, next page.—Ed.]

Swelling from Bee-sting

Can you tell me what will prevent swelling from a bee-sting?

Jewett, N. Y.

ROGER P. ROSE.

[About the only thing to do in the case of a sting is to remove it as soon as it is received, taking precaution not to squeeze the poison-bag at the time of doing it. The sooner it is removed, the better. If it is allowed to remain in the flesh the effects will be much more severe, because the sting will gradually work itself into the flesh until the contents of the entire poison-bag are injected into the wound. Sometimes if the affected part is placed in the mouth, and the poison sucked out, it helps somewhat, the same as is done in the case of snake-bites in the West.

As a general thing, there is not very much that can be done to allay the effects of the

sting except to keep down the local fever by the application of hot and cold water in alternation. Never rub the affected part, no matter how much it may itch or burn. If one has been stung for the first time he should remain very quiet, keeping himself as cool as possible. In any case, if one should receive very many stings he should apply the hot and cold applications, using a little salt in the water to help neutralize the effects of the active poison, and then keep very quiet. If blotches break out on the individual, call the services of a physician immediately, especially if the heart should be affected.

The foregoing advice applies only to those who have not become accustomed to the effects of the poison. Old beekeepers, while they feel the pain of a sting as much as they ever did, have no after-swelling. They do nothing except to remove the sting. Further treatment is unnecessary.—ED.]

Robbers Attacking a Nucleus

In dividing a colony for the introduction of a queen, about half the frames were taken to the new hive and stand. The queen was put in in the usual manner; but imagine my surprise when, upon opening the hive about a day later, I found it almost solidly full of robber bees, with clouds of others hovering around the hive and striving to get in. The queen was still safe within her cage. I find robbers one of the greatest obstacles to the division of a colony. No matter what method is used, the queenless half is somewhat demoralized, and not in good condition to defend itself against robbers. I shall be glad to receive any suggestions as to what should be done when such a problem arises.

HONEY-CLOGGED BROOD CHAMBER OF A QUEENLESS COLONY.

Here are the conditions: I should like to know what an experienced beekeeper would advise. A prosperous colony, at the height of the honey flow, became queenless for some unknown reason, and failed to raise another queen. All the larvae and brood developed, and the very prosperous colony then filled every cell in the ten frames with honey and sealed it over. The bees hanging around the entrance of the hive, and the ten frames of finest sealed honey, made a sight to be remembered. What would an experienced beekeeper do first, and what would he do next? How would he treat the situation, especially if he had no extractor and no extra frames on hand? I have seen many inquiries as to what to do with a poverty-stricken hive or a weak colony; but I have never seen such a perplexing problem of over-prosperity in the way of honey. In such conditions it would be useless to have introduced a new queen, because there was not a cell in which she could lay.

EDWARD F. BIGELOW.

Arcadia, Sound Beach, Ct.

[After forming nuclei during the robbing season it is very important to reduce the size of the entrances to about the space one bee can pass at a time or close with grass. A nucleus, when it is first placed on its stand, will not recover its colony spirit sometimes for 24 hours, and in this interim robbers get into the hive and overpower it. If the weather is not too hot or the nucleus too strong we usually advise closing the entrance with grass for 24 hours. The grass will wilt, and allow the bees in the hive to escape, by which time they will have recovered their colony spirit enough so they will put up a defense. As a rule nuclei should be put on their stands the night before if the entrance is left open.

In the case of the honey-clogged brood-chamber, we would have taken out three or four combs in the center, put in empty combs, and introduced a queen. A beekeeper can have no better capital than combs of sealed stores which he may use to supply colonies short of stores late in the fall, mid-winter, or the following spring. At such times it is not practicable to feed.—ED.]

Can Honey Producers do Without the Middleman?

I wish to commend Mr. Hastings' article, July 1, 1912. He says we can not do without the middleman, and in a very ingenious manner compares what the producer pays the middleman to what he would have to pay hired help to take his place if he marketed his produce himself.

Omitting a discussion of what added profit the

middleman, jobber, wholesaler, and retailer make off the producer, and the tendency of each to cheat the other, and all of them the producer, and granting that beekeepers are better informed along these lines than most other producers, I doubt whether there is one that will not agree that there should be some better way of handling our product than the present wasteful unstandardized means of disposing of a crop of honey. Mr. Hastings says we can not do without the middleman, but I think we can. The National Association has stepped out of the dark, and says it is anxious and willing to be the middleman. Now it is up to the producers to help. If we do not sow we can not reap. Let us follow Mr. Hastings' advice, and co-operate. If we do our part it will be easy for the association to do its.

JAMES K. HEDSTROM.

Calabasas, Cal., Aug. 1.

Variations in Color and Disposition

Why is it that not much is heard of the Banat bee of late? I read nothing about them in any journal. Are they no good? or what is the matter? I have one colony of what I suppose to be Banats. The queen was bought as a tested one from a well-known breeder.

I have also a colony of goldens bought of a well-known breeder. I notice no difference in color between them and my regular three-banded bees. Could these bees be called golden with only three bands? They are as gentle as the Banats.

I have 25 colonies of regular Italians. Why does their temper vary so? I have some that are almost stingless, while others attack me at a distance. The queens are fine bright yellow; the bees all well marked with three bands, all reared by myself from fine blood. Is it natural for some three-banded Italians from the same breeder to vary in temper this way?

SUBSCRIBER.

[We do not know that we can point out to you the definite objection to the Banat bees. We know that they were tried quite considerably seven or eight years ago, but for some reason or another they have been largely dropped. We presume the facts are these: On testing, they probably proved to be no better in the long run than the Italians or Carniolans, so that it would only be multiplying races and making beekeeping more complex to introduce the Banats and accomplish no real good. See the report by Albin Platz just below.

There is an unfortunate lack of uniformity in the ideas which different breeders have regarding queens, especially as regards color. What some call "golden" would be called "leather-colored," probably, by others. The goldens are usually supposed to be four or five banded, although we do not know that there would be any good reason why an extra bright-yellow queen should not be called "golden," even though she had only three bands.

The question of gentleness is one concerning which no definite law can be laid down. If queens are reared from a queen mother whose workers have always been very gentle, and introduced to respective colonies, those colonies will usually be quite gentle also. On the other hand, queens reared from a queen mother whose bees are very cross are also likely to have cross workers themselves. This is not a positive rule, however, for unquestionably the drones have some effect on the disposition of the workers, so that it depends somewhat upon the drone with which a queen mates as to whether her workers will be gentle or irritable.—ED.]

Banats Not as Good Honey Gatherers

During the last few years quite a little has been said about Banats. They have also been advertised quite extensively, and numerous merits have been claimed for them. Let me give, in a few words, my experience with them.

A little over two years ago I purchased a tested Banat queen of a prominent queen-breeder, and introduced her safely to a colony of bees. The first year I had her (1911) the honey season in this locality was a complete failure; and, moreover, American foul brood was rampant. They wintered successfully, and started the year 1912 in good condition. However, as the season advanced and they started to breed rapidly, holding their own with

other colonies, I noticed that, although their hive was packed with bees, they stored very little honey. It seems they make a great demonstration about nothing, rushing in and out; flying when it is too cool for other bees to be foraging, and, in short, accomplishing very little. The queen scatters her brood over several brood-chambers, filling some frames completely, and others scarcely at all. They are extremely excitable, scampering over the frames and stampeding in great shape, and finally dropping off in bunches into the grass. To find the queen is like finding a needle in a haystack. They are poor comb-builders, often drawing out one side of a frame of foundation and neglecting the other side. However, they have one good quality. They are hardy, and winter well. That is their only redeeming feature.

Now as to results as far as honey is concerned. My best colony of Italians produced 155 lbs. of extracted honey to date. The others averaged 95 lbs., and the Banat colony gave me just 37 lbs.—a very creditable showing surely! No more of the black fellows for me. I am going to winter them, though, and requeen next season; for about all they are good for is to hold their own against any amount of cold. After all there is no strain of bees equal to good Italian stock in gentleness, ease of manipulation, and honey-storing propensities. I advise all to stick to them.

Cincinnati, Ohio.

ALBIN PLATZ.

Hive Numbers Made of Rubberoid

The best numbers for hives that I have so far found are some that I cut myself out of rubberoid roofing.

I bought a series of two-inch stencils, and, after marking the roofing, I cut the numbers out with a penknife. It was slow work, yet it paid. I have been using them for four years, and they are still as good as when first made. They would last even better if they were painted or dipped in the paint that comes with the roofing. They are black, and show up very clearly on the white hives.

BEES, WHEN THEY START THEIR OWN CELLS, MAY
SELECT LARVAE FOUR DAYS OLD.

Page 294, May 15, Dr. Miller refers to the "American" and the "natural" method of starting cells. If a hive is dequeened at any time when the bees are not preparing to swarm, what age of larvae do they pick to start their queen-cells with? When making an experiment of this kind it is necessary to keep a pretty accurate watch on the frames for about five days before dequeening. You should chart out the different combs as you find them each day, then you will be in a fair position to know the age of the younger larvae.

I was surprised to find the number of two, three, and even four day-old larvae the workers selected to produce their queens with. Naturally, the older the larvae selected, the earlier the queen emerges from her cell; so the older larvae is by far the more likely to be the coming queen of the colony.

I very much question if the youngest novice at queen production (I do not say breeding) could do, from our point of view, more harm than the bees themselves do according to the above experiment, which has been verified on three different occasions.

Will Dr. Miller be so kind as to tell us what method the Swiss use to introduce their virgin queens?

Swarthmore, Pa.

PENN G. SNYDER.

[We respectfully turn this over to Dr. Miller.—Ed.]

Swarm Accompanied by Three Virgins

Regarding the item on number of queens in a swarm, page 469, Aug. 1—here in North Vancouver we have had unsettled weather practically all summer, and consequently some swarms have been delayed. Here is an instance: Early in June I found a swarm issuing, and noted the direction it seemed to be traveling. As all my queens are clipped I expected to find the queen in front of the hive, but was disappointed; and as the bees did not return I guessed the reason—supersedure. I located the swarm in a small patch of brush, and took an empty hive to the place.

On shaking the bees on to a sheet of newspaper, and watching them marching in, I was surprised to see three queens afterward. I opened the hive and took the first queen I could find and returned her to the parent hive, first breaking down the remaining cells. Both colonies did fairly well. The queens commenced laying, and were clipped shortly after—about two weeks, I think. Is it a common occurrence for several young queens to go out with a swarm?

A VIRGIN THAT MISSED HER HIVE WHEN RETURN-
ING FROM A FLIGHT.

On returning home after half an hour's absence one summer afternoon, about 4 o'clock, I noticed some excitement among the bees of two hives, and found the probable cause in the shape of an Italian queen on the top of one of the said hives. Now, as I said, the queens of all full colonies were clipped, but I had several nuclei (for mating) in which were virgin Italians, and I found some little excitement in one of these; so, taking a chance, I picked up the young queen and put her at the entrance of this hive; thereupon she walked boldly in, and things seemed to quiet down and I found her (or any way an Italian queen) laying about a week later. I supposed the bees had accompanied her on her matrimonial trip; but why she could not have gone straight home, and why the other hives were excited, was beyond me. Perhaps you could explain.

North Vancouver, B. C.

FRED E. WHITE.

[It is not unusual to find after swarms with a number of virgin queens. We have taken over a dozen. However, such a find should not take place in a well-regulated apiary. Occasionally, however, a good beekeeper will have more bees than he can look after, with the result that he will have after swarming and a plurality of virgins to each after swarm.]

It not infrequently happens that a virgin on returning from her wedding-trip will go into the wrong hive. Sometimes she will supplant the regular queen of the hive. At other times she will be promptly balled and killed. Old queen-breeders recognize the importance of having each hive so distinct in its location that the virgin will have no difficulty in finding her own home.—ED.]

Bee-stings a Cure for Gout

I should like to relate my experience with bees as a cure for gout. I have been a great sufferer in years past from that and lumbago. One year ago last May I purchased a hive of bees for the purpose of the benefit I might receive from them by the better fertilization of my flowers and vegetables, and while handling them I was frequently stung. I was led to believe that, as I had been free from symptoms of my old complaints, I had been benefited. Last March I was getting ready for a trip to Colorado Springs and other points in the West, when I was taken with the same old symptoms of returning gout. I called my physician, and he prescribed the old remedies, when I startled him by saying that I was going out and let my bees sting me. This was Wednesday. The next day being sunny and warm, March 14, I hobbled out to my hives and removed my overshoes (for I was not able to get on my shoes) and hose, and put my foot up to the hive entrance, but they would not sting. Finally I caught three by their wings and carried them to my foot, and they did their part all right. The next day my foot was swollen very badly, but free from pain. On the following day, Saturday, March 16, I caught two more bees and let them sting me. That evening I was able to get on a pair of loose shoes, and have been on my feet ever since. I took my trip west, and had no symptoms of gout while I was gone, nor since my return. I will say I stopped taking all medicine after my first sting, and have not taken any since. I manage to be stung at least once a week to keep me in perfect health. I would not be without my bees for any thing. They are worth to me more than all the physicians for gout and lumbago.

Portland, Me., July 18.

C. M. TALBOT.

[This is quite a remarkable case. Is there any one else among our subscribers who has had a similar experience, or knows of any one else to whom bee-stings have been a cure for gout or lumbago?—ED.]

Death of Walter M. Parrish

Walter M. Parrish, a well-known beekeeper and queen-breeder of Lawrence, Kansas, died July 18 at San Bernardino, Cal., where he had gone some months previously because of failing health. Mr. Parrish was an enthusiastic beekeeper, and was exceedingly well posted upon the subject of which he was a student almost from childhood. He will be remembered as having contributed a number of articles to the bee journals. He also lectured at various times before the bee and horticultural societies of his native State. Not only was Mr. Parrish a beekeeper, but he was an ardent lover of nature in every form. He was a young man possessed of a strong character and a kind and lovable nature. His loss to the community and the beekeeping fraternity will long be felt.

Monrovia, Cal., Aug. 19.

LEVI J. RAY.

Growing Sweet Clover on Wheat Ground

Last fall I prepared 14 acres for wheat, and in December sowed nearly five bushels of white-sweet-clover seed on the field; but it was not entirely a success. However, I will have another 14 acres of wheat ground sown to white-sweet-clover (in the hull) this fall.

To begin with, the soil must be good. Here is my plan: We have 14 acres of good fallow ground plowed and harrowed nicely. Two tons per acre of raw ground limestone have been applied since the ground was plowed. Next we will apply 250 lbs. of acid phosphate per acre. The wheat will be drilled at the regular time, and five bushels of white-sweet-clover seed will be sown just before winter. We cut our sweet-clover for hay the second year of its growth. The aftermath, or second growth, is to be turned under for potatoes the year following. We gather the seed in the fall when most of it is ripe, and spread it out on the barn floor, and stir every day or two; then it will not heat, but grow finely.

We clip our sweet clover the first year in July or August to destroy weeds; but if it is clipped twice the first season it seems to be injured. If there are but few weeds it should not be clipped at all.

Lakeville, Ind.

C. A. BUNCH.

Uniting a Laying-worker Colony with the One that Stands Nearest to it

Having just read the article on laying workers, page 523, Aug. 15, I wish to say that, in my opinion, there is little use in trying to save the colony in the same hive. My method is to unite the laying-worker colony with the nearest colony after smoking both of them so that the bees fill up with honey. I leave entirely vacant for a week the stand formerly occupied by the laying-worker hive.

Like Dr. Miller I think bees count as much in one hive as in another; but if I want a colony on the vacant stand, after a week's time, I secure it by taking frames of brood and young bees from any source I see fit, letting them raise a young queen of their own if I have no other to give them.

I leave for 24 hours the laying-worker hive over the hive it was united with, then drive all the bees down into the lower hive with smoke, brushing off the few that remain. After this I use the hive that formerly contained the laying-worker colony any place where it happens to be needed.

WESLEY L. ROBERTS.

Four to Five Comb Honey Supers per Colony

On my strong hives, that did not swarm, bees are working on their fourth and fifth comb-honey supers, and the extracting colonies are three stories high, with the two top stories ready for the bee-escape.

White and sweet clover and basswood seem to have yielded tremendously during the latter part of June and the greater part of July. I have had supers of ten shallow extracting-frames, filled from two-inch foundation-starters, in about eleven days, as I kept close watch on the honey flow.

Considering the fact that I am but an amateur, and the first season that I have actually seen a queen or even the inside of a hive, I took a chance at an out-apiary which I can visit only

after working hours, getting swarms on the trees as late as dusk. I increased from 12 to 27 hives, three of which gave third swarms which I hived on eight-frame hives, as I was anxious for increase. These are doing well. At the last inspection there was brood in seven or eight frames.

TIMOTHY O'DONNELL, JR.

Chicago, Ill., Aug. 20.

[This is a good report for a beginner; but it should be remembered that a small apiary in a comparatively isolated location will give a much larger yield in proportion to the number of colonies than a large apiary.—ED.]

Moving Bees in Hives that were About to Fall Apart

Last spring we moved some colonies in old-fashioned hives that were so old they could hardly be lifted without coming apart. In the evening, when we loaded the colonies, we ripped open a lot of burlap sacks, put about eight inches of straw in the wagon, and drove to the apiary. We tied one sack over the top of the hive; then, while one man lifted the hive up, two more tied another sack around the under part. By being careful in handling the hives we reached our destination, a distance of about six miles, and lost very few bees.

Cochranville, Pa.

FLOYD MINICK.

[It is our opinion that bees in these hives could have been moved without the use of sacking by giving them a liberal dose of smoke before loading them on the wagon, then starting off on a brisk trot. The jarring would have kept the bees god-natured; and if they were unloaded immediately before recovering their colony spirit, there probably would have been no trouble to man or horses.—ED.]

Swarm Stopped by Smoke

About a month ago I opened a colony of bees, and they started to swarm. I gave them a good smoking and they returned at once. Yesterday I had a colony start to swarm, and I gave the bees a good smoking and they returned.

Dry Fork, W. Va., Aug. 22.

E. C. MERSING.

[As a general thing, when smoke is used liberally to drive back a swarm that is coming out it has very little effect. We have tried it repeatedly; and while it may check for a moment the onslaught of bees coming out, they will recover themselves and rush harder than ever. Your experience, we should say, was quite unusual. The only way we succeed in stopping such a swarm is to clap a wire-cloth cage right over the hive, and catch the swarm in the top of the cage.—ED.]

Lizards Eating Bees

The worst enemy that my bees have are the lizards that lie under the hive and catch the heavily laden bees that miss the alighting-board. I have an extension board $5\frac{1}{2}$ inches wide; but many bees miss it and fall to the ground, especially on windy days. My hives are on stands a foot above the ground because of ants, lizards, etc., and also in order to provide ventilation underneath, for the sand is very hot during the summer months. I have found hens' eggs in which the whites were cooked by the sun and hot sand. There are a good many ants' nests under the hives on the ground. About all I can do is to use a 22-caliber rifle to kill the lizards.

Bishop, Cal.

GEO. HUNTINGTON.

Nearly One Thousand Colonies in One Apiary

I moved 700 colonies here. This is a mesquite location. I secured 350 cases of honey, and increased the apiary to 985 colonies. I now intend to move back to Chandler for alfalfa.

Chandler, Ariz.

J. M. HERMAN.

[So far as we know this is the largest apiary, possibly, in the world. Mr. Alexander kept 750 colonies in one apiary on the average; but here is a case where, for a time at least, there were nearly one thousand colonies. Can anybody beat it?—ED.]

Our Homes

A. I. ROOT.

Judge not, that ye be not judged.—MATT. 7:1.
Thou shalt not bear false witness against thy neighbor.—EX. 20:16.

And Abram said unto Lot, Let there be no strife, I pray thee, between thee and me, and between thy herdmen and my herdmen; for we be brethren.—GEN. 13:8.

In the *Rural New-Yorker* for Aug. 24, the "Hope Farm" man (friend Collinwood) has something to say in regard to "grain smut," which, in consequence of the recent rains, is unusually bad this season. And he goes over briefly the best methods up to date to counteract smut and other fungous growth. After what he says about the care of our crops in this line he gives us the following:

HUMAN SMUTS.

A political campaign is not unlike a thrashing-machine. Men and what they say are run through it, and usually you will find a black dust of abuse and falsehood rising from it. This is what I call human smut—the meanest and most dangerous part of politics. For example, I received a note from a very well-known man in Ohio, who said:

"Mr. Roosevelt came through Ohio speaking against Mr. Taft. At one place he was so drunk that three men were needed to hold him up while he talked."

When I demanded proof it seems that this man got the story from a minister, who got it from another man, who in turn got it from "three reputable persons." Another man claimed that when Roosevelt spoke in Boston he was so drunk that he staggered as he came on the platform! Another man, who sat on the stage, insists that Mr. Roosevelt caught his foot on a hanging board.

Now I call these things human smut—a germ disease which gets into the minds of some men and makes them magnify and repeat such hideous stories. Every one knows where I stand on the rum question. We have no more use for intoxicating liquor than we have for typhoid germs, and the sooner people know it the better I am satisfied. The worst criticism I have of many Prohibitionists is their narrow and malignant personal abuse of public men. Somehow they can not see how this restricts their influence. As a case of typical human smut there was a young minister accused of beating his wife! The scandal terminated in a secret trial by the elders and deacons. The case against him was as follows: Three reputable church members were in front of the minister's house one night when they heard a fearful scream. The shadows on the curtain were very distinct. They recognized the woman's voice screaming and pleading, and saw the minister striking at her with a club, and heard language "unfit for the pulpit." Then suddenly all was dark, and there was a louder scream from the woman! A complete case, you will say, and human smut flew through that town like that from an oat-thresher!

Finally some one thought that, as a matter of form, they should give the minister a chance. His story was that he and his wife were having a particularly loving time—as much so as was possible in that moldy old parsonage. All at once a mouse ran out of his hole—across the floor. Ministers' wives are very human, and this one screamed and jumped on a chair, where she stood waving her skirts and her voice to frighten the mouse. Most ministers are also human until they enter the pulpit, and this one caught up a boot-jack and ran about striking at the mouse, and, as he frankly admitted, using certain words which, while seemingly appropriate in a mouse hunt, were not for publication. The mouse got away without damage, but the bootjack knocked the lamp off the table and put it out. Thus the screams, the language, and the blows were all genuine; but the witnesses did not read the shadow

panoptime correctly. Murder was intended, but it was mouse rather than wife.

Now, human smut is scandal, and it can take such a case as this and spread a social disease which means ruin to reputation and blight upon progress. To the point—I believe these stories about Mr. Roosevelt are false and foolish. Men who are upon the most intimate terms with him tell me frankly that these stories are false. I believe them to be what I call human smut. They and the people who repeat them and add to them ought to be soaked in formalin and then sprayed with lime-sulphur. Mr. Roosevelt is at a disadvantage in that he can not say at once that he does not drink at all. I wish he could and would say so; but the men who are gathering back of him by the hundred thousand have been so well soaked with a desire to help their country that they are immune to human smut! You may take it from me that, sooner or later, the new party will be obliged to take a strong stand on the liquor question. They were forced to take up votes for women, though many of the leaders have opposed such a change. They will have to drink cold water yet.

I was exceedingly glad to see the above—so glad, in fact, that I have given place to it here in GLEANINGS. With the *Rural* I heartily agree that Mr. Roosevelt is at a disadvantage because he can not stand up as Taft recently did and say that he does not drink at all; and I think that President Taft added that any man who occupies so high and sacred a position as that of the chief executive of the United States should be able to say under all circumstances, "I do not drink."

Now, with this in mind I wish to express myself a little more freely than ever I have before in these pages in regard to the attitude of the Prohibition party toward the Anti-saloon League. Let me make another extract here from a letter from a good friend of mine who is an active Prohibitionist, and who occupies an important position in the affairs of the great city of Philadelphia. In his personal letter to me I find the following:

I am writing you a personal letter simply to enlighten you on some facts that I learned while attending the national Prohibition convention at Atlantic City last week. . . . I learned from a good ministerial brother who attended the national convention that both local option and the Anti-saloon League were positively enemies of the prohibition movement; and from very good data which were furnished me the Anti-saloon League was started by some liquor men in order to defeat the prohibition movement.

Philadelphia, July 26.

The above statement was to me simply appalling, and I can think of only one parallel case just now. When Jesus commenced doing his great work of casting out devils the Pharisees said, "This fellow doth not cast out devils but by Beelzebub the prince of devils."

Just think of it, friends. At the first meeting ever held in starting the Anti-saloon League, your old friend A. I. Root was present. Dr. Howard H. Russell, who

was an intimate friend and classmate with Ernest at Oberlin College—a most devoted Christian man and minister—was the man who first suggested the idea of combining all the people who love temperance, no matter what their affiliation, and fighting the saloon. It was my privilege to subscribe \$500 in order to start this new movement. Mr. Metcalf, a most devoted Christian man, gave another \$500; and the idea that Dr. Russell and your old friend A. I. Root were in the power of the liquor interests, or that the liquor power was back of them, is about the most absurd and silly falsehood I ever heard. Let me explain a little further.

Almost as soon as the Anti-saloon League got to doing effective work here in Ohio, the Prohibition papers, instead of bidding it Godspeed, commenced finding fault and picking flaws. I remonstrated first with the *New Voice*, and begged them to show at least Christian courtesy. The *New Voice* went down, for some reason unknown to me. The *National Prohibitionist* took its place (or at least so far as I know, it did), and began fighting the Anti-saloon League. I remonstrated again, and had a lengthy correspondence with Editor Ferguson. The *American Issue* at first made some reply to their thrusts; but I begged both periodicals for God's sake to refrain from this "cross-firing" when we were both working honestly before God, for the banishment of the saloon and for State-wide prohibition. I finally told Mr. Ferguson that his periodical would go down as did the *New Voice* if he persisted in giving place to such unchristianlike editorials or articles. Now, to show you that I was not hoping they would fail financially, or any thing of that sort, let me tell you that I gave them \$50.00 at one time when they were in financial straits, and voted repeatedly the Prohibition ticket. I was also a life subscriber to the *National Prohibitionist*; but it went down as I predicted, because, as I still think, of its unchristianlike attitude toward good temperance men who did not see things as they did. As an illustration, the pastor of our church—a man who occupied a high place in the affairs of the nation, absolutely refused to read it any further. When the *American Advance* and the *Vindicator* took the place of the *National Prohibitionist* I was pained beyond measure to see that they also—at least occasionally—gave place to articles that would almost seem as if they hated the Anti-saloon League as much as they hated the saloon-keepers.*

Because the Anti-saloon League made a map of the State of Ohio, showing the number of dry counties, the *American Advance* said it was not true, and that the counties they claimed to be dry were not dry, accusing the Anti-saloon League of untruth, and finally concluding something to the effect that the Anti-saloon League had never done any thing for temperance.*

Of course, there was some truth in some of their statements, as there always is; but it was not the whole truth. When we had our recent vote in Florida for State-wide prohibition the Anti-saloon League dropped local option entirely and worked against it; but a lot of the liquor men of Jacksonville all at once discovered that they were in hearty accord with local option. You can readily see how this came about. The Anti-saloon League came out into the open promptly, and declared they had nothing to do with them, and would have nothing to do with them. The same thing happened up in Maine. A great lot of brewers and liquor-dealers all at once discovered (as in Florida) that local option was exactly the thing; and I regret to say—in fact, I say it with pain—President Taft, together with the Governor of Maine, all at once espoused local option. Let me add that the Anti-saloon League of Ohio

agree with the Prohibition brethren. Where one county is made dry and the adjoining one is wet, the people do run over into that neighboring county. Our own county (Medina) has been dry for over 25 years; but some seven miles away, on the county line, is a little four corners where there is a saloon just over in Lorain Co. On a recent occasion eight drunks were arrested in one Sunday night round about that same saloon; and just a few nights afterward a railroad man was killed right in that vicinity, with a bottle of whisky in his pocket. I consulted our attorney to know if Medina people could do any thing to make that saloon-keeper at least obey the law; but the lawyer said the responsibility rested almost if not entirely on the authorities of Lorain Co. Notwithstanding this, I do know that the Anti-saloon League has accomplished wonderful results in making the greater part of the area of Ohio dry. We are in fact almost ready to drop local option and unite on State-wide prohibition.

Just one thing more: Many of the dry counties in Ohio have been humbugged by getting wet sympathizers into office. You will excuse me if I say that it seems as if "the very Devil himself" was shrewdly engineering for the brewers and distillers. But may the Lord be praised for the promise in his holy word, where John tells us he saw an angel come down from heaven, and he bound the old serpent, the Devil, and Satan, for a thousand years.

* While speaking about temperance periodicals, I wish to hold up to view the *Union Signal*, the official organ of the W. C. T. U. May God be praised for such a pure Christianlike periodical. Not only the love but the broad charity of the Lord Jesus Christ seems to shine forth from every page; and it has never, so far as I know, permitted a word of criticism in its pages of the Anti-saloon League; but it has again and again rejoiced in the victories they have helped to win. It also truthfully chronicles the progress and success of State-wide prohibition throughout our land; and when the mothers as well as the fathers are permitted to vote in this land of ours, I am sure a great victory will be close at hand.

* There are several points on which I heartily

will drop local option in a minute, *any where*, and vote for State-wide prohibition with the Prohibition party just as soon as there is a reasonable prospect of success. Well, now at just this very minute is the "golden opportunity." The Anti-saloon League will gladly unite with the Prohibition party and put in Chafin or Bryan as President, and thus unite the different forces, the Christian people, and the churches of *the whole United States* if the Prohibition party will consent. But instead of that they keep on hurling clubs at the Anti-saloon League, and promulgating statements at their great conventions, such as the one I have recently mentioned, held at Atlantic City. May God help us in this crisis; and may we who love righteousness and hate iniquity take *greater* care than ever before that the arch prince of darkness does not any longer get into our conventions, into our temperance periodicals, nor into our churches, and stir up strife where there is certainly no occasion nor need of strife and disagreement. Let us remember the beautiful sentiment expressed by the patriarch Abram when he said to Lot, "Let there be no strife, I pray thee, between thee and me. . . for we be brethren."

YE ARE OF MORE VALUE THAN MANY SPARROWS.

A good friend away off in Colorado sends us a little story clipped from a pamphlet sent out by the Y. M. C. A. of Mesa Co., Col. On some accounts the story belongs to "high-pressure gardening;" but in reality it should have a place in the highest kind of gardening—even the gardening that was taught by the hand and voice of God in the garden of Eden, away back in the beginning—a gardening and *garnering* of the souls belonging to the boys and girls in our homes. Here is the story. Read it and see what you think of it.

STORY OF A MESA COUNTY BOY AND A BIG RED APPLE.

John Average Mann was a successful fruit-grower in Mesa County, Colo., and Frank was his son. Frank was a bright boy and full of promise. At twelve years of age he dropped out of Sunday-school (but this was unnoticed, for in that county only 46 per cent of the boys attend Sunday-school). Shortly after this he began to smoke cigarettes which he bought at the corner grocery, contrary to the laws of that State. A few of the neighbors who chanced to know about it said something ought to be done, but nothing was. When he was fourteen he dropped out of school and folks all remarked it was "too bad." And then he began to find evil companions who led him gradually into places of ill repute, for, as the boys said, there was no other place to go. Many were sympathetic, and said something ought to be done for the boy. At seventeen Frank got in a "scrape" in Grand Junction, and it cost John several hundred dollars to save him from prison. A wise old man remarked that if John had half as much knowledge about the rearing of children as

about the growing of apples Frank would be different. Frank has since gone out into the world unprepared physically, educationally, socially, or morally to do a man's work in the world. John seldom hears from him; but last report said he was in Denver "workin' round at whatever he kin find to do." John and his lonely wife continue to work in the fruit, and dream of the happy days when Frank was a boy.

One day there was a knock at the door. It was the county horticulturist, who said he had discovered a strange blight in one of John's trees. A big red apple was withered and disfigured by some unknown disease. The field horticulturist must be called at once. In less than two hours he arrived on a motorcycle. The apple was treated, and the tree sprayed, but without avail. A "bugologist" was called from the agricultural college by telephone; the neighbors gathered, and there was a consultation, spraying, and pruning. The apple, once red and plump, now faded and withered, fell to the ground with a dead, sickening thud. The experts could not understand it, and the neighbors were frightened lest the disease might spread. A telegram was sent collect to the Department of Agriculture at Washington. In three days a great national entomologist arrived, and there was more consultation, spraying, and pruning. The disease was checked. John was grateful, and willing to pay the expense; but the county horticulturist said, "No, the people of the county are interested in the fruit crop, and they pay the bill." The field horticulturist said, "You owe me nothing. The State pays for such work." The Washington expert said, "That is what the Department of Agriculture is for. Feel free to call on us." One evening, after a few months, as John sat in his easy chair, thinking of Frank, his good wife handed him a book that had come in the day's mail. It was a bulletin of the Department of Agriculture entitled "Fighting the Heterocerous Lepidoper Bark Louse in Mesa County, Colorado." The old man sighed and said, "It is strange so many were interested in saving my apples and no one interested in saving my boy."

The above may be slightly exaggerated, especially some of the closing sentences; but I am afraid it is a fact that the different departments at Washington, especially the Department of Agriculture, seem to think this matter of preventing the dissemination of noxious insects is of more importance than looking after the morals of the children of our great land. Somebody said not long ago that the Department at Washington would send a learned professor across the continent to doctor a *sick pig*; but a sick *man*, woman, or child seemed to be outside of their jurisdiction. Let us thank God, however, that at least *something* is being done in caring for the spiritual health of our people. Now let us all work and pray that not only the Department of Agriculture (at the head of our nation) may give *more* time and attention to the spiritual life as well as the physical, but that Uncle Samuel may very soon also give us a couple of bulletins to which I should like to furnish the headings. The first would be, "A Bulletin Considering the Effect of Intoxicating Liquors on the Financial, Physical, and Spiritual Well-being of Our People." The other bulletin would be just like the above, substituting the word "tobacco" for spirituous liquors. Will you not work and pray, with me, that the above *may* be brought about?

High-pressure Gardening

EARLY POTATOES; ANOTHER "GREAT DISCOVERY."

Perhaps most of you remember how I urged you all last spring to plant just a few early potatoes in your back yard. Well, when I got back here to Ohio I undertook to "practice" what I had been "preaching," but could not find any Early Ohio, Bliss Triumph, nor any other extra early potato at any price. The best I could do was to get a bushel of Early Rose; but these had to be shipped from up in Michigan. I tell you this so that you may take warning and lay in a stock of early seed potatoes this fall, so you will not be caught as thousands of others were when they were ready to plant. Well, I planted my Early Rose, giving them the best soil and the best cultivation on nicely drained ground, and in response to my "high-pressure" treatment they just grew and grew; and now, with the abundant rains we have been having, some of the vines will reach up higher than my head, and they are still growing as thriftily and with as rank a luxuriance as when I first planted them. There are not very many potatoes yet, and Mrs. Root says they are all "going to vines," although I have assured her that wherever there were rank vines there *would* be potatoes sooner or later. Well, the result is that, while our potatoes are "Rose" all right, they do not seem to turn out to be *Early* Rose. There is no very brilliant discovery in that, is there? Right adjoining my patch my son-in-law has a garden, and he got hold of some State of Maine—the best he could do for extra earlies. Now, while my Early Rose potatoes were covering the ground with rank luxuriant foliage, the State of Maine was puffing up the ground, indicating that there were potatoes there; but as the State of Maine was still rather green and luxuriant, we hated to dig them a whole hill at a time; so we commenced "scrabbling" out the big potatoes, leaving the hill to keep on growing more.* Well, one of my favor-

ite implements, both in the greenhouse and out in the open ground, has been a good-sized kitchen spoon. This kitchen spoon, however, is made of metal, and hence it is apt to become rusty, especially if it is not cleaned off thoroughly with the fingers every time it is laid down. One day when I was in a hardware store I caught sight of a big enameled spoon, and decided that it would be just the thing to use in the garden. Well, my wonderful discovery is this: Take such a spoon as I have described, and a little basket. (I always carry a *little* basket because a big one is apt to give me "that tired feeling.") Now with your basket and spoon go through your potato-patch and find where the ground is cracked open and is puffed up. Scrape off the dirt with your spoon until you get sight of the potato that is pushing up the ground. Now slide your spoon under this potato, push down on the handle, and out pops the tuber. Put the dirt back, and go on until you have enough potatoes for dinner; and do this, if you can, just before dinner time. If you have never tried cooking potatoes right fresh from the ground, I think you will pronounce this the nicest potato you ever tasted—that is, if you have a State of Maine, Early Puritan, a Thoroughbred, or a Bliss Triumph. Put the dirt back carefully, and your vines will keep right on growing—that is, if you have plenty of moisture. Pulling out the big potatoes acts like thinning out the fruit on an apple or peach tree. It enables the others to grow larger, and it loosens up the soil, and this does good and not harm.

Now, you people who have been digging out a whole hill while the vines were green and thrifty have been losing perhaps half the crop. Do not dig potatoes, if you can help it, until the vines are all dead and dry. So long as there is any green in the stalks, the sap is gradually going down into the tubers under ground. Some of you may say that scrabbling potatoes out of a hill is nothing new; but my discovery is along the line with which it can be done with a *big enameled spoon*. You can get such a spoon of Sears, Roebuck & Co., for a nickel.

THE TRUTH ABOUT SWEET CLOVER.

Just about two years ago our booklet on sweet clover of almost 100 pages was sent out. We printed 20,000; and judging from former experience we thought they would last five or six years; but just now our printers inform me

* Does somebody ask if it is the regular habit of the author of the Home papers to wander off into a garden belonging to a neighbor and help himself whenever said neighbor happens to have better "garden sass" than his own? My reply is, this garden patch belonged to Blue Eyes, and I had been spending considerable time in pulling great weeds out of the potato-hills that nobody seemed to see but myself. One day in pulling up a great red-top weed a big nice potato came along with it; and as I went by her door I called out, "Con, I have pulled pretty near a wagonload (?) of great weeds out of your potatoes, and I am going to take along some of the tubers for pay." She replied, "All right, father; help yourself." So you may know that I not only enjoyed thus digging out the big potatoes, but I enjoyed doing it with a clear conscience; and Mrs. Root and I also enjoyed admiring the good qualities of the tubers at dinner time.

that the books are all gone but two or three hundred; and at the rate they are now called for they will all be gone before we can get another edition printed. What do you suppose is the reason? Simply this: The whole wide world is just waking up to the fact that the plant that many of us stupidly called a "noxious weed" has proved to be not only a valuable legume, but possibly the most valuable, all things considered, not even excepting alfalfa. The particular reason why it was called a noxious weed is because it is somewhat bitter in taste, with a peculiar odor. Domestic animals have to acquire the habit before they recognize it as a great nourishing food. Another thing, we have been blundering in the dark in our attempts to grow it as we grow other clovers. The recent discovery that it wants *lime*, and *must* have it, to produce the best results, has given it a great boom. We have been buying and selling the seed by the carload; but at the present time, Sept. 1, we are running short of a supply again.

A few days ago I visited Mr. H. T. Lane, of Twinsburg, O. Friend Lane is a sweet-clover crank. In fact, he told me he had invested over \$150 in hard cash during the last year for sweet-clover seed. He has been sowing it in different ways, and in different fields of something near 20 acres, although he has not secured a real good stand on much more than half that area. For instance, where it grew with tremendous luxuriance when sown with a field of barley on a low mucky soil, on a high gravelly hill it did not seem to do much if any thing unless he used either lime or a dressing of stable manure. A load or two of stable manure on a dry hilly knoll gave a luxuriant growth—some of it seven to eight and even nine feet high. Well, a good dressing of lime did almost as well as the stable manure. But when you have both lime and stable manure, then you have the ideal conditions for a stand of sweet clover. Where neither lime nor stable manure was used in many spots of ground there was no sweet clover, and almost *nothing else* for that matter, except a few stunted weeds. Mr. Lane agreed with me that he has been using too heavy a seeding. For instance, friend Wing, one of our best authorities, recommends 20 lbs. to the acre. Now, if every seed should grow, or even half of them, and the ground was limed or manured, 5 lbs. would be ample; and if you could have a stand of sweet clover with one stalk on every square foot, and soil that suits the legume, this one plant would probably give us more seed and

feed than any heavier seeding. See what is said elsewhere about transplanting alfalfa, page 568, Sept. 1.

Mr. Lane has toward a hundred colonies of bees; therefore the 20 acres of sweet clover do not make much of a show for each colony, although it keeps them raising brood, and helps to fill up with winter stores. As yet he has not got very much back for his investment of \$150. He said he had fed out a small stack of sweet clover mixed with some other grasses, and he added that his horses and cattle eat it with avidity, but he could not as yet decide how much it is worth for hay compared with other clovers. As he has quite a crop of sweet-clover seed to harvest, he will get some money for that, aside from the honey and the feed for his cattle. Perhaps I might add that friend Lane is in the great sugar belt of Northeastern Ohio. He has some of the finest maple trees I ever saw anywhere; and as he has toward a thousand sap-buckets he must have 500 or more sugar maples in his camp. He has a story to tell in regard to one of his finest and largest maple trees. It is a good match for my colony of Italians that gathered a *barrel of honey* during one summer. Well, this maple tree was tapped on three sides, each side having a six-gallon pail. During his best sugar day, in one of his best seasons, that tree filled all three of those six-gallon pails in one day. Now, if the sap continued to run all night, as it often does, that tree must have given a barrel of nice sap in 24 hours. I asked him if he had any syrup or sugar left. He said it was all sold at a good price. You see this great grove of maples is *also* a valuable adjunct to the bees. The trees must furnish a large amount of honey and pollen when in full bloom. His good mother, who still keeps house for him, is 83 years old; and she told me she was still reading my department in GLEANINGS, and expected to continue to read it with interest as long as we both live. I believe she still keeps house for her son without any assistance from any of the younger folks; and she is certainly very bright and active for a woman of her age.

PLANTING BASSWOOD TREES FOR HONEY, ETC.

In a late issue of your magazine I note what you say about your great yield of basswood. Having in mind a few acres of land which I could purchase, I beg leave to ask a few questions.

Would you consider soil lying on the western side of a low ridge or mountain a suitable place for basswood? The soil is of a sandy nature, and, I would say, below the average in fertility.

Do you mean to say in your editorial that basswood trees must be 40 years old before they yield nectar? At what age do they begin to blossom and yield? Do you know of any government bulletins on basswood trees?

Henrietta, Pa., Aug. 10. V. ROSS NICODEMUS.

My good friend, basswood trees will begin to bloom, usually, in four or five years from the seed—sometimes even three years; but, like all other plants, or at least like almost all others, it is only occasionally that we get a great yield of honey. There is as yet, I am pretty sure, no government bulletin in regard to basswood trees.

I can not answer your question about suitable soil, further than to say that bass-

wood thrives best near a stream of running water. In fact, we often see great trees overhanging water, and it does best on any low and rather moist land. But there must be drainage, for the basswood will not grow in standing water. Wherever you find it growing wild in the woods it is pretty sure to thrive under cultivation. In fact, with proper care, drainage, moisture, etc., it can be made to grow almost anywhere.

Poultry Department

THE CONVERGENT EGG-FARM, ETC.

Mr. Root.—Please tell us in your paper whether Mr. Stoddard ever in his life made a *living* from poultry. I have known of him 30 years, and he was always advocating some wonderful (Philo) scheme for making people rich raising poultry. But they were all wind, and impractical nonsense. He is still at it.

Great Barrington, Mass.

SETH WINSTONE.

My good friend, are you not a little rough on our old friend Stoddard? While there is a good deal of truth in what you say, I believe it is also true that Stoddard's first little book, "An Egg-farm," in which he first, so far as I know, advocated colony houses, was a very valuable contribution to our poultry literature. If you have been a reader of GLEANINGS you may be aware that I afterward severely criticised his larger book because it had so much impractical machinery.

Now, in regard to the convergent-poultry-yards idea: A few days ago I visited the city of Cleveland expressly to get a competent architect to make plans for our proposed bungalow cottage. He said it was out of the question for him to do it at once as I desired, and he finally gave his reasons. He and all his force of several clerks were working almost day and night on a great dairy barn or dairy farm. It was exactly like the convergent poultry-yard that I described in GLEANINGS. The cows were all on a circle with their heads toward the center, and the care was all given from that inner circle, the feed being dropped by gravity from the loft overhead. The architect, Mr. Herbert B. Briggs, informed us that such a dairy farm is already in working order at the Agricultural University of Illinois. Now, friend Stoddard in his youth did give us a good idea through the *American Agriculturist*, and later in his 30-cent book, of which we sold over 1000 copies; and if he gives us *in his old age* another good idea, in the convergent yard, shall we not give him credit? Very likely it is true that friend Stoddard, like many other inventors and geniuses, never had the faculty for "making money,"

as does friend Philo to whom you allude, and others who may not be half as deserving.

"MORAL DEGENERATES" IN THE CHICKEN-YARD.

In your issue for Aug. 15 you ask, "Will chickens eat bees?" I take the usual amateur's delight in volunteering what I *know* to be a fact. Not all chickens will. I don't believe some could even be induced to eat even dead ones; but you know, or ought to, that in every poultry-yard there is apt to be one or more "moral degenerates" that will persist in eating unwholesome food, catching wasps, centipedes, etc., and any filthy offal they can get to.

For two years I had chickens and bees. The first year I had two that just haunted the runway before the hives till I killed them. The second year I had one that took it up, so I made away with him. They were fair-sized broilers before I ever caught them at it. They may have begun by picking up dead bees around the entrances, though I frequently poured crude petroleum over them and all around the hives to keep down ants and grass.

They didn't seem to mind being stung. I would throw cobs at the hives to stir the bees up, hoping they would rally and drive them off. They would just dance and flutter a little, and then pick off the adhering bees and eat them, and deliberately go back to picking them off the alighting-board.

I have seen a hen pick them off the alighting-board of a hive in an old negro's front yard. He said she ate a few every day "for pepper."

A bee-sting hurts a little chick, and swells it up as tight as a tick. I had one killed by one stinging on the neck.

Bee-eaters are like egg-eaters, feather-pullers, and those that get to pecking each other's heads to pieces. Feeding meat scrap is sometimes supposed to induce these habits; by others, the absence of meat in the rations is charged to the fault; but it is just a depraved appetite that will show up in some individuals of every flock, whatever the plan of management.

Little Rock, Ark., Aug. 1. JERRY HUMPHREY.

My experience indicates that the above is exactly right.

Here is something more along the same line:

Chickens will eat bees when they have no large run. I was trying out a pen of White Leghorns for record, and *confined* them near where bees would fly out in early spring and get chilled, and others would fly near by. The chickens would catch them first, kill them, and then eat them. I lost many before I "got wise." I have been keeping bees about 20 years.

Astoria, N. Y.

C. L.

You want to know if any one has positive knowledge about chickens eating bees. I will say this: I noticed a young chicken, probably a third grown, eating bees at the entrance as they would alight. I killed the chicken, and it had killed ninety, I think. This is the only one which I ever had occasion to examine.

J. R. COOPER.

Spargursville, O., Aug. 20.

Cleanings in Bee Culture

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Editorial

HONEY-CROP CONDITIONS.

By consulting our Honey Column it would appear from the reports that the market in some localities is a little quiet, owing to the heavy arrivals of fruit; but the demand will undoubtedly pick up. In some places the arrivals of honey are slow in coming in. The demand for comb honey is active in most places, while in nearly all of them the market for extracted is stationary or a little slow. As we reported in our last issue, the crop of buckwheat honey will be light. It is apparent also that in some sections of the West, the honey season is below average, particularly on the western slope of the Rockies.

THE FRED W. MUTH CO. BURNED OUT.

On the 10th of last month the warehouse and store of the Fred W. Muth Co., 51 Walnut St., Cincinnati, was visited by a destructive fire. Evidently the fire had been smoldering for hours and finally broke out in early morning. There was \$30,000 worth of goods in the building, on which there was an insurance of \$22,500. As there was not an entire loss, the company probably will not lose much. A new building has been rented at 204 Walnut St., within a square of the former location, and the company will be able to do business again within a couple of weeks at the furthest.

UNRELIABLE PRESS REPORTS CONCERNING HONEY.

In our issue for Aug. 15, page 509, we published a statement from the *Montrose Press*, in which it was predicted that the crop on the western slope of Colorado would amount to 35 or 40 carloads this year. This clipping was sent us by a correspondent, and we supposed it was reasonably correct or that he would not have sent it; but we have been informed by several parties that the crop will be only about one-fourth of the amount stated.

We are very sorry that the statement appeared; but it is almost impossible for us at long range to know whether all the statements made about the honey-crop conditions are correct. However, we have about decided that we will no more accept statements concerning crop conditions from the ordinary newspaper. In the mean time we hope our friends all over the country will take pains to give us the exact facts. It is our sincere desire to publish only the truth.

CANADIAN GOVERNMENT BULLETIN ON BEES.

THE Division of Entomology of the Canadian Department of Agriculture has issued Bulletin No. 2, by C. Gordon Hewitt, D.Sc., Dominion Entomologist, entitled "The Honey Bee." This bulletin is very full and explicit, and will be of immense help to beginners especially in Canada. In fact, as the introduction states, the bulletin is prepared especially to answer the following question, which is asked in countless letters that are continually received: "I should like to keep bees, and should like to have you tell me how to begin and what to do."

The beginner is taught *how* to begin, and how to locate the apiary. Excellent advice is given regarding equipment, and simplicity of fixtures, etc., and then follows a description and explanation of various paraphernalia connected with the business. A few helpful notes on the habits of bees and their natural history are given; but the leading part of the bulletin is devoted to management, and also to that all-important phase of the question, disease and its treatment. The illustrations from our own "Farmers' Bulletin" No. 442 are used, showing the conditions of the dead larvæ of both varieties of diseases.

Among the half-tone illustrations is a very fine picture of the Sibbald hot-water wax-press, which was described some years ago in these columns. In brief, the Sibbald press uses a can large enough to re-

tain a large quantity of hot water, which prevents the slumgum from chilling. There is no heat underneath while the pressing is going on.

The relation of bees to flowers and fruit comes in for a very clear explanation with illustrations. If all Canadian fruit men could read this part of the bulletin they would see at once the tremendously important part that the bees have in accomplishing the pollination of the blossoms.

Residents of Canada can probably obtain this bulletin free of charge, the number of which is 69, by addressing The Government Printing Bureau, Ottawa, Canada.

NOT ENOUGH OF COMB HONEY IN PROPORTION TO THE AMOUNT OF EXTRACTED HONEY PRODUCED. THE VALUE OF SUPERS FOR THE PRODUCTION OF BOTH COMB AND EXTRACTED HONEY.

A REVIEW of the market for several issues back would seem to indicate too much extracted and not enough comb of No. 1 quality. We intend to preach the doctrine of producing more comb until conditions are more nearly equalized. We are glad to note an increasing demand for comb-honey supers adapted to the production of both comb and extracted honey. The two outside rows have extracting-combs, while the center rows have sections with full sheets and bottom sheets. As the season tapers off, as it is bound to do, the dribblets of honey are lodged in the extracting-combs on the outside, while the sections in the center, if the management has been right, will be filled so as to make a No. 1 or choice comb honey. Such supers also, besides eliminating to a great extent unfinished sections that never ought to be put on the market, are well adapted to localities where the honey-flow is of short duration, making it possible to secure only a limited number of sections. But because the seasons have been poor of late, producers have been running more and more to extracted. A weak colony in a good season or a strong colony in a poor season will produce more in extracting-supers than in comb; and this is one potent reason why there has been a dropping-off in the production of comb in favor of extracted. But a combination super, it should be understood, eliminates to a great extent the difficulty of producing comb honey with a weak colony in a good season, or a strong colony in a poor season. Producers will be making up their orders for supplies soon for the coming year. Many of them, if not all, will do

well to try out the combination supers. Some of our most extensive beemen now recognize their efficiency, and are using them in a large way. Among this number we would mention Mr. E. D. Townsend, of Remus, Mich., well known to our readers.

A NEW SPECIAL NUMBER SUGGESTED.

In response to our request for ideas on special numbers, there have been a number of ideas suggested, concerning which we shall probably have something to say later on. At this time we wish to mention an idea given us by Mr. Morley Pettit, Provincial Apiarist at the Apicultural Department of the Ontario Agricultural College. We give his letter herewith in full.

In reference to special numbers of GLEANINGS, I have appreciated and enjoyed them very much. The idea is an excellent one.

There is a difference of opinion among some of our Canadian beekeepers in out-apiary management as to whether it is better to have a complete outfit at each apiary, and travel from one apiary to another with a horse and buggy, motor cycle, bicycle, or automobile. On the other hand, some consider it much better to have one settled establishment, and then use a team or motor truck to haul the supers home for extracting, bringing every thing home in the fall and then again in the spring.

As a number of our beekeepers are considering establishing out-apiaries, and others are dissatisfied with their present arrangements, it seems to me a discussion of this most important question in a special number would be of value some time before spring.

We believe this kind of special number would prove very practical. We are here reminded of the fact that quite a large number of our readers have written, expressing appreciation of the automobile number, and requesting that we have another one. Now, it occurs to us that a good deal of helpful material along this line would be very appropriate in this special number on equipment. In other words, if you believe in a central extracting plant, and use automobiles or auto-trucks to carry the combs to it, let us hear from you, and, if possible, give us good clear photographs of the truck that you use, and also of your extracting plant.

On the other hand, if you have an extracting outfit at each apiary, and make the trip with your helper to do the work, and then later have the honey hauled home, let us have the particulars, with reasons why you think the plan is the most economical.

There is a third plan which quite a number follow, and this is to have a portable extracting outfit—really an extracting-house on wheels. This is drawn from yard to yard, the honey being hauled on the return trip.

Then there has been in the past quite

a discussion as to the relative merits of using one large extractor instead of two or more smaller ones. There are advocates of both plans. We should like to have this discussed also in this special number. Do you find it better to have one eight-frame extractor or two four frames? In this connection, Mr. R. F. Holtermann, of Brantford, Ontario, Canada, has gone so far as to have one twelve-frame extractor built to order; and after testing it this past season he expects to give us the particulars.

Some of these plans have been illustrated at various times, but we should like to have them all brought together in one special number. We will announce the date of this a little later, but it will probably be one of the early numbers of next year.

Of course it is to be understood that we pay for all material that we use, and we wish to say that, for all articles or photographs that we use in these special numbers, we shall expect to pay a little more than our usual rate. So let us have your ideas, and be sure to give your reason why you think your plan is the best. We will make it worth while to you, and we are sure that your ideas will be helpful to other beekeepers who may be planning to make a change.

MR. HOPKINS AND HIS METHOD OF RIPENING HONEY ARTIFICIALLY.

IN our issue for May 1, page 265, we published a letter from Mr. A. Ireland, President of the Canterbury Beekeepers' Association, New Zealand, under the title of "Extracting Uncapped Honey Not Practiced Generally in New Zealand." In this article Mr. Ireland, after stating that Mr. Hopkins stood alone in the matter of ripening honey artificially, so far as the beekeepers of New Zealand were concerned, made this statement:

We had an exhibition here some years ago. Mr. Hopkins, then acting for the government, was running an apiary in connection with the exhibition. At that time he was practicing his plan of premature extracting; but the sample of the honey in Agricultural Hall soured, and started to ferment; yet in spite of such adverse experience he still advocates the plan.

Mr. Hopkins has written us in reply that the honey in question, so far from souring, is still good, even after the lapse of five and a half years; that he has sent letters from eight different persons certifying to the excellent quality of the honey on exhibition at Christchurch. They are T. W. Kirk, Director of Orchards, Gardens, and Apiaries; A. McPherson, Government Field Instructor; Miss Olive Feist, in Charge of

the Government Apiary; Daisy R. Hart, in Charge of Ruakura State Apiary; T. W. Lonsdale, District Agent of the Department of Agriculture; E. P. Brogan, Foreign Manager's Assistant of the Ruakura Farm of Instruction; A. P. Young, in Charge of the Apiary of the Department of Agriculture; and Dr. H. W. Wiley, then Chief Chemist of the United States Department of Agriculture.

We have carefully examined the statements made by these parties, and all of them speak of it in the highest terms.

We are glad to make this statement in justice to Mr. Hopkins; and in the mean time we have written him to send us an article describing his method of ripening honey artificially. While we have generally advised against the practice, believing that the artificially ripened product would not be the equal of honey ripened in the hive, we are open to conviction.

LATER.—After writing the foregoing we received a communication from Mr. W. B. Bray, of Deveauchelles Bay, New Zealand, taking issue with Mr. Hopkins in regard to the advisability of trying to ripen honey artificially. As his article seems to be so fairly and candidly written we publish it on page 633 of this issue. While we have no disposition to mingle in the controversy between Mr. Hopkins and his friends on the one side, and Mr. Ireland and Mr. Bray on the other side, we may say that the general experience in this country is decidedly against trying to ripen honey artificially. The people who have made the largest protest are the large buyers of honey—men who would know whether artificially ripened honey is the equal of that ripened by the bees. In saying all this we are not inclined to doubt the ability of Mr. Hopkins to ripen honey artificially, just as he says he can, in his locality and under his conditions. But as our correspondent, Mr. Bray, points out, atmospheric conditions have every thing to do with success or failure of the artificial method of ripening honey. This explains why some not so favorably situated do not meet with success.

We still solicit an article from Mr. Hopkins, who is one of the best authorities on bee culture in New Zealand. Doubtless he will take up these various questions connected with the proposition. In any case, no one can doubt his sincerity, and we are convinced, in view of the testimony that he has offered, that there must have been some mistake about that particular honey souring in Agricultural Hall to which Mr. Ireland refers.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

EDITOR GERSTUNG adds formic acid to sugar syrup to aid inversion. — *Deutsche Bzcht.*, XII.

BEES are reported as going down 70 feet into a well after water. — *South African B. J.*, 74. [This seems doubtful.—Ed.]

THE FIRST Rietsche foundation-press was sent out in 1883. In 1909 the number had reached 50,000. — *Schweiz. Bztg.*, p. 198.

"A BIRD DOG at Mount Vernon attacked a beehive in a playful mood. The bees stung the dog to death." — *Chicago Record-Herald*. Next time that dog feels like attacking a beehive it will first inquire whether the beehive is in a playful mood. Also whether there are any bees in it.

EDITOR GERSTUNG says, *D. Bzcht.*, 87, that bees generally supersede their queens during the time of building up in the spring. I think that for every one of my queens superseded before the harvest, 10, if not 20, are superseded after it. How is it with others, and what should make the difference? [Same here.—Ed.]

C. P. PALMER writes the same thing that N. Fred Gardiner says, p. 525: If a man faces the south his right side will be toward the west, and it's the same with a hive. No doubt that's right, and it's a good thing to have it settled, for sometimes that side is called the right side that is at one's right hand as he stands facing the hive.

CHAS. H. WALKER, p. 417, you'll probably never produce sections without a good many unsealed cells next the wood; and if "one or two cells" are enough to drip in handling, then these cells are not fit to ship. The remedy is to keep them in a place so hot and dry that the honey in the unsealed cells will become too thick to drip.

FRANZ RICHTER, the wide-awake lookout man of *Bienen-Vater*, has my thanks for helping out about who originated that way of getting cells built in a horizontal frame. It should be labeled "Made in Austria," not "Germany." J. Stumvoll was the originator, and I got it from *Bienen-Vater* and mentioned it in a *Straw*, April 15, 1909, p. 224.

YOUNG BEES gone astray are the worst stingers. So one is likely to be stung when working at a hive while the young bees are at play, for then they are thrown astray and become cross. — *Leipz. Bztg.*, 77. That's given on the authority of Weygandt and the editor; but has any one noticed any thing of the kind on this side? [We have had no such experience.—Ed.]

IRON in the blood is a matter of the greatest importance. The great trouble, where it is lacking, is to administer it in such form as to be assimilable. You may feed a man a keg of nails without getting much iron in his blood. It is not as well known as it should be that honey contains iron in shape to pass directly into the circulation. As shown in a table, *Schweiz. Bztg.*, 158, honey also contains phosphorus, chlorine, lime, sulphur, magnesia, silicon, potassium, natron, and manganese. Some or all of these are needed in the human system, and here they are in just the right shape. That makes honey in all cases a valuable food, and in some cases a valuable medicine. Sugar can not fully take its place, either for folks or bees.

THERE is not so much danger of giving too many empty sections to a colony if you keep in mind to wait until the bees have at least made a start in the outside sections of the supers already on. When the first super is only a quarter filled, if it's overflowing with bees, and every prospect of a big yield for many days, there's not such a very big risk in putting an empty super under—and even another on top—*provided* the bees have made a good start on all the sections clear out to the corners. But if there is still untouched foundation at the outsides, and you add another empty, the bees are likely to begin in the center of the new super before starting the outside sections of the old, and there will be a tendency in both to have sealed sections in the center, and empty foundation at the outside.

EDWARD HASTINGS, p. 418, rural mail delivery must be exceptional with you. "In this locality" carriers could double or quadruple their loads without increase of time or pay, and take just as long trips; and if the business should so increase that extra teams should be needed, there would still be money in it at the price charged per pound. I suspect parcels post will prove cheaper than you think, and that country merchants will be surprised to find it an advantage. [What you say concerning the possibility of rural mail-delivery carriers being able to carry double or treble the loads they now carry, without any increase of time or pay, would apply in this locality so far as we have observed. In driving to and from our beeyards in all directions we meet mail-carriers every day, and therefore we have a fair opportunity of forming an opinion.—Ed.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

The Ontario Beekeepers' Association will hold its annual convention in Toronto during the week of Nov. 12. The program is not yet prepared, but due notice will be given later as to place of meeting, hotel and railway arrangements, etc.

* * *

Owing to a misunderstanding on the part of the directors of the national exhibition held in Toronto this year the exhibit of honey is very limited, only one of the usual displays being in evidence. The other exhibitors this year had fine crops, and arrangements had been made for a record exhibit, when the unfortunate matter alluded to knocked out all their plans. Not being in full possession of the facts in the case, I will wait till next issue before referring to the matter more fully.

* * *

A WARNING.

Reference has been made to the unusual amount of brood in the hives at this date, Sept. 7. That means either starvation this winter or a heavy feeding bill for sugar. While the specialist beekeeper is not apt to be caught napping, this reminder is given for the benefit of those who have a few bees, and always depend upon enough being in the brood-nests for winter. Colonies run for comb honey may be all right; but if run for extracted honey they certainly will need feeding in all sections where conditions are like those here in York Co., Ontario, this season.

* * *

CLOVER PROSPECT GOOD FOR NEXT YEAR.

In glancing over my department for Sept. 1 the reader will no doubt wonder at the contradictory items regarding the weather conditions here in Ontario during past summer, as in one place reference is made to the extreme heat and then again I speak of the very cool weather during basswood bloom. This is explained by the fact that the two items referred to were sent in at different times. As a matter of fact, the only really hot weather we had this season was during the first two weeks of July; and since then we have had a long spell of unseasonable, cool *wet* weather that has knocked out all our expectations of getting a bumper crop of buckwheat honey from our yards this year. While some surplus has been stored from

the buckwheat, yet there is not a quarter of what we would have had with seasonable weather. For some reason the brood-nests are more crowded with brood at this date (Sept. 3) than I ever knew before, and of course that will mean lots of young bees for winter; *but* it will also mean a heavy feeding bill to get them in shape for good wintering. But all the rain we have had has not been an unmixed evil, as never before have I seen such prospects for al-sike clover. There are hundreds and hundreds of acres of it; and it is so thick and rank on the ground that much of it is blossoming and growing right up among the shocks of grain, which in many places are still in the fields, owing to the unprecedentedly long spell of wet weather.

* * *

COLONIES IN POOR CONDITION WINTER BEST IN A CELLAR.

That symposium on wintering, Sept. 1, is interesting; and on looking over the various articles on the subject I am reminded that a promise was made last spring to furnish an article with illustrations showing the successful caves used for wintering my large apiary in the county of Leeds. While I entirely forgot the promise, owing to being very busy during the past few months, at some future time I hope to describe this simple building that winters so successfully. After all is said and done on the matter of wintering, there will still be advocates of both indoor and outside methods, right in the same locality, all owing to the different conditions found in cellars and other repositories, as well as the different methods taken of wintering outdoors. One thing is certain, and I have learned this by experience with the caves referred to—in a perfect wintering repository bees will winter with little preparation and a small amount of stores when they would die outright if packed in the most approved methods outdoors. On the other hand, if *strong* colonies are given abundance of good stores, and protected in any of the approved ways, they will winter far better than if just as well provided with stores, and wintered in a poor repository. From the fact that perfect wintering repositories are the exception rather than the rule, and that good outdoor wintering can be secured by all, providing proper care is taken, the latter method is and will continue to grow in favor among men who are in the business extensively, and have to keep their bees in different localities.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

SUNFLOWER HONEY.

We are having our honey this year well colored by the flow from the sunflowers. This is the first year that enough nectar has been collected from them to color our alfalfa and sweet-clover honey.

* * *

WHEN TO CUT ALFALFA.

The older stockmen and ranchers still maintain, in the face of the advice of experiment stations, that alfalfa should not be cut till in full bloom, and so I saw many fields of beautiful purple on the western slope that were a joy to the heart of a beekeeper.

* * *

NO NECTAR IN CLEOME THIS YEAR.

Cleome, or Rocky Mountain bee-plant, is to be found in large quantities over the whole State; but so far it seems to be yielding no nectar this season. Many beemen had hoped that it would furnish a fine fall pasture for the bees, but this does not seem to be probable this year.

* * *

Sweet clover is ten feet high beside our orchard, and a man on horseback would almost be lost in the luxuriant growth. The season has been a wet one for Colorado, and the clover is yielding honey well. Southwestern Colorado has red soil, and the sweet clover there is more fragrant, and I should judge it secretes more nectar than in Northern Colorado.

* * *

STEALING HONEY.

Honey thieves tried to drive the bees from one of my filled supers with a shotgun, half a dozen shots being fired into it. The super was pulled off and put into an irrigating ditch to help get the bees out. The hive was tipped over in getting the super off. Mud and dirt were daubed all over the honey. The thieves were run down by a young farmer, and their names secured. He knew most of them. They all had guns, and had been out hunting; but he, unarmed, caught and lectured them. The outcome will be interesting.

* * *

THE ROBBER TENT.

Last fall Robert E. Foster, county bee inspector for Montrose County, and myself, made a tent without a top, as described by the editor, August 15. We got the idea from Dr. Phillips. Perhaps he got it from the editor. The tent worked all right for fall inspection if the apiary was not too large; but the bees finally do find their way

over the top of that tent. Ohio bees may not, but Colorado bees have a habit of finding all six sides of a cube—perhaps from their experience with the steep sides of the Rocky Mountains.

* * *

MAKING THE LOAFERS GET TO WORK.

Bees which cluster on the outside of the hive are wasting their time. A hatful of them could fill a super in a week. Try this plan: Lean a drawn comb beside each outside cluster. The bees will soon desert the side of the hive for the comb. When eight or ten of these combs are covered with bees, beside as many hives, put them all together into a hive; screen them in, and haul to the next apiary. In three or four hours they will be very glad to have a virgin queen run in among them, and such a colony will work with the vigor of a new swarm.

* * *

UNOCCUPIED BEE TERRITORY.

Colorado has a good number of unoccupied fields for beemen, as a trip of investigation will show. A few districts are overstocked, and it is not necessary to warn against locating in these places. There is hardly a county where a person could not buy out one or more apiaries, getting the range with the purchase. Beekeeping is not so profitable that there is much crowding. Winter losses, foul brood, arsenical spray poisoning, honey failures, have all combined to make a cloud which at least has no *golden* lining. We hope a *silver* lining will still be in evidence.

* * *

FEEDING BACK EXTRACTED HONEY FOR COMB HONEY PRODUCTION.

The inter-mountain region is one where feeding back extracted honey for the finishing of bait combs has been a demonstrated success. Some few points should be borne in mind if the best results are to be obtained. The colonies selected to be fed should be strong in bees, and each should have a young vigorous queen. It is important that they be good wax-builders and white-comb makers. Feeding should be started before the honey-flow has ceased. As the flow tapers off, the feeding should start. Combs of even capping and color should be placed on hives doing a corresponding class of work. The feeding should be discontinued when the weather gets cool. September is the last month for successful work, and August is the month to begin. Such colo-

nies, if they have young queens, will winter in well-nigh perfect condition, and are worth three of the ordinary colonies on April 1 of the following year. This feeding will stimulate breeding, and will wear out an old queen, ruining the colony during the winter; it is a fine test for a failing queen, and all such should by all means be superseded at the earliest date. Lastly, it may be stated that only the whitest honey should be fed for the finishing of white comb honey.

* * *

BULK COMB HONEY.

Some of the Arkansas Valley beemen cut out their unfinished sections of comb honey and pack them in 60-lb. cans, and then pour extracted honey (heated) over the combs. This is the only bulk comb honey that I know of being put out in Colorado, and there seems as yet to be no trouble with granulation. The amount produced is small, and it is all sold before Christmas. The weight runs around 55 to 56 pounds net, and the honey is sold by the can, not by weight. This honey brings \$6.00 a can—about 11 cents a pound.

The only way, as I see it, to put up comb honey in bulk is to fill the can full of the combs and then fill in with extracted. Trying to make up weight by putting in more extracted and less comb is simply dodging the question. Of course, if the buyer wants just a little comb honey in the can of extracted, it can easily be put up that way; but it is not bulk comb honey; it is extracted honey with some combs in it.

* * *

A LATE FLOW.

About August 15 the weather turned cold, especially the nights following a rainy spell. The bees deserted the supers and ceased swarming, and carried all the honey stored in the unsealed cells of the sections to the brood-chamber. The weather warmed up again about the twentieth of the month, the warm nights returned, and the third crop of alfalfa came in bloom. The bees returned to the supers, and at this date, September 1, they are finishing honey in good shape. If the flow continues for two weeks the crop in northern Colorado will be a third larger than it would be with no nectar from the third growth of alfalfa. Honey from the third crop is something that we do not get once in ten years, on account of the cold nights. A fine rain has just started the sweet clover with new bloom, and the hot days put the nectar there for the bees. The rosinweed is in bloom, and this furnishes a yellow and very inferior honey. If the alfalfa and sweet clover yield well we hope that the nectar

gathered from the rosinweed will be negligible in amount. Rosinweed honey granulates very soon after being stored in the comb.

* * *

THE COLORADO HONEY REPORT.

The crop conditions in Colorado were fairly accurately reported in the August 15th number, except the report taken from the *Montrose Weekly Press*, which reported a far larger crop than will be harvested. Montrose was credited with six or seven cars, while two cars of comb honey will be the very most in car shipments, and no cars of extracted will be shipped from Montrose. It is possible that three cars of comb and extracted honey may be produced in and near Montrose, but it is doubtful. The local shipments take a considerable amount, and some honey is used in the local markets.

If ten cars of comb honey are shipped from the western slope this year I shall be greatly surprised, and that will be about as much as went out last season. Twenty-two cars of comb honey were not shipped from western Colorado last year, as stated, nor of comb and extracted combined. The total shipments from all of Colorado will not total thirty-five or forty cars. I think that a newspaper report without authoritative data may do a great injury to the honey market.

The Arkansas Valley may ship two cars of comb honey to the eastern markets, and as much as one or more cars may go east a short distance by small local shipments. No cars of honey will be shipped from Fremont County. Two cars of honey may be shipped from Montrose. Not more than two cars of comb honey will leave Delta County, as there is considerable extracted honey produced, and the loss of bees has been heavy. Mesa County may ship as much as three cars of comb honey, but I do not know where it is all coming from. Extracted honey is produced by the larger beemen. Garfield County may ship one but hardly two cars of comb honey, and no cars of extracted. Northern Colorado may have ten cars of comb honey, and I know of six or seven that are quite likely to materialize. Southwestern Colorado, comprising La Plata and Montezuma counties, will have no carload shipments of comb honey, while several hundred cases may be shipped by local freight. Most of this is consumed in the local markets.

It should be borne in mind that the honey-flow is not over with at this date, September 1, but is likely to close at almost any time, and probably has closed in some parts of the State.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Ex-President B. G. Burdick, of the State Association, is nursing a broken foot, due to his automobile moving without caution.

* * *

Try burlap in your smoker. I find it surpasses any other fuel I have ever used for cheapness and convenience. Nearly every one has some old burlap bags lying around.

* * *

Mr. Crane, I did not intend to imply on page 297, May 15, that sealed brood in any stage would stand a temperature of 40 degrees for I do not think it would, though I have never tested it thoroughly. What I mentioned was the fact that mature bees hatched three days after being exposed to a temperature as low as 40 degrees. The nearer mature, the more cold they will stand.

* * *

In a dispatch from Portersville, Cal., clipped from the Los Angeles *Tribune*, Mr. Robert J. Smith, in writing of the cause and cure for the June orange drop, recommends the spraying of orange-trees. I infer from Mr. Smith's article that this would be done during the blooming period, though this point is not made clear. Should this be the case, and come into general practice, it would be a sad blow to the beekeeping industry in the orange districts.

* * *

On page 525, Aug. 15, Walter C. Bennett takes a "hot shot" at the editor of this department as well as the editor in chief. Mr. Bennett wants a large piece of pork to make him swallow the report I gave of an average of 700 lbs. per colony for Orange Co. in 1884. Can't some of you old-timers from Orange Co. come to my rescue? We are rather short on pork in these parts; but I look for a return of one of those bumper seasons some time that will produce enough honey to wash this story down for Mr. Bennett. I may say, however, that a yield of 500 lbs. for a single colony is not at all uncommon any good season now, though much above the average, and we do not use box cars either.

* * *

A prominent beekeeper recently suggested to me that honey taken from over excluders, free from brood contamination, should bring at least one cent more per pound than where no excluders are used,

and more or less larvæ find their way into the strainer, or even into the honey-tank. Sometimes I fully agree with this gentleman's suggestions, though at the same time I realize what a howl will go up from many beekeepers at this suggestion. Perhaps the quickest way to bring this about, were it possible, would be to parade the consuming public through honey-houses at extracting time where the excluders were and were not used.

* * *

BEES DO NOT PREFER LARGE ENTRANCES.

Mr. Crane, page 363, June 15, seems to have found grounds for entrances as large as those of Mr. Latham or Arthur C. Miller.

A close study of the natural tendencies of the bees leads me to the conclusion that large entrances are neither sought nor desired by them. There is no question but that they select some very large entrances; but this is due often to inability to find a better place readily. I have watched the scouts in the woods searching for a habitation. With a zigzag nervous flight they will move up and down a tree only an inch or two from the bark, searching for an entrance to the body or limb. If they were in search of a large entrance their close searching flight would not be necessary. In the majority of cases they select a small knot-hole or crack through which to enter the cavity. Here in town, where where they have made their homes in houses they have nearly always entered through very small cracks or knot-holes. There is a swarm in the First M. E. church of this city that enters a crack $1\frac{1}{2}$ inches long by $\frac{1}{4}$ inch wide. The desire for a small entrance is undoubtedly for protection from robber bees, other insects, and small animals, as well as from inclement weather. I use a $\frac{3}{8}$ -inch entrance across the front of my hives, and find it ample for all purposes, even under the scorching sun of our midsummer skies.

General Honey-crop Report from the Southeast

Reports of the summer honey crop have come in from almost all sections of the Southeast, and we are able to make a definite report from our section. The honey-flow has been very heavy over the partridge-pea and clover section, and also over the great cotton belt; and a great honey harvest has been the result, such as we have never experienced before. This was due to ideal weather conditions. Local showers have been frequent over almost all sections, causing a most vigorous growth of the honey-plants. The temperature has been high and the wind has been calm, making conditions ideal for a great honey harvest, and for which we are very thankful.

Cordele, Ga., Sept. 14.

J. J. WILDER.

Conversations with Doolittle

At Borodino, New York

BUILDING AN UNDERGROUND CELLAR.

"Mr. Doolittle, I am thinking of building an underground cellar for wintering bees, as I find that this plan is much talked about in the bee journals."

"Well, Mr. Barber, any one who proposes to build a cellar to be used solely for wintering bees should first count the cost; and the advantages and disadvantages of cellar wintering should be looked into, so that as few mistakes as possible may be made. Most of those who winter in a cellar do so to protect their bees from the severe weather. You will remember that last year, from the first of January right through to the middle of February we had one continuous siege of cold weather when the thermometer was anywhere from 25 below zero up to zero, while at the same time winds were blowing that carried this cold air into every crack and crevice. The advantage of a cellar under such conditions is far-reaching, in that it allows us to economize to the greatest possible extent on the consumption of stores by the bees, and at the same time the per cent of loss is decreased to two per cent, and the vitality and vigor of the bees that live over are conserved to the greatest degree."

"But you have mentioned disadvantages of cellar wintering. What are they?"

"The disadvantages can be summed up thus: The labor required in carrying the bees in and out of the cellar, the difficulty of caring for any individual colony which may require looking after, without disturbing all the other colonies in the cellar, and the difficulty in controlling the temperature in the cellar. This last disadvantage is the most serious of all. When the sun gets around in the north in the spring, and damp still weather prevails, the temperature in the cellar often has a tendency to run too high, thereby exciting the bees. The excitement induces untimely breeding and a wearing-out of the vitality of the mature bees, which may bring on bee dysentery or death, and which also causes spring dwindling, so that many of the colonies become too weak to be of any use when the harvest of white honey begins. When I wintered bees in the cellar under my house I could control all conditions until about the middle of February or the first of March, and I thought there was nothing like this plan of wintering; but all at once the weather would change, and the thermometer would jump to 40, 50, and even 60 degrees, while the air would be muggy and damp. At such a time

the roaring of the bees in the cellar would sound like the rushing of the wind through the bare and leafless trees in the forest, and the bees would come out and die on the cellar bottom till they could be swept up by the bushel."

"But I thought this state of affairs could be prevented by opening the doors at night or carrying the bees out for a mid-winter flight."

"I know that some advise this; but opening the doors at night always seems worse than nothing when the air outside is warmer than that inside; and carrying the bees out for a flight and taking them back again makes a lot of extra work, and the results are not enough better to pay for it. After trying all of these plans for several years—for example, setting a part of the colonies outside and leaving the rest inside till all of them could be taken out for good, as well as opening the doors at certain times and keeping them shut at other times—I came to the conclusion that the bees were just as well off by May 10 if they and the cellar had been left entirely alone."

"But you do not propose to winter under a dwelling-house; therefore, when building your special cellar, you can so design it that it will afford proper protection during these warm spells, so that the temperature remains unchanged throughout the winter and spring. You will thus have only two main points to be kept in view—proper protection and convenience of access."

How Long Does it Take to Nail Together Five Hives?

I made the following notes on setting up: Five ten-frame dovetailed Root hives, R. cover, no supers. I did not nail the hand-hold blocks on. Commenced work at 7 A. M.; at 10.45 A. M. division-boards nailed; frames nailed, stapled, and wired, ready for foundation. At 1 P. M. bottom-boards and covers done; nails countersunk and puttied. At 1 to 2 P. M., rest. At 3 P. M. I set up the fifth hive body; countersunk all hive-body nails, and puttied nail-holes; nailed in from rest tins, having now hives complete for paint. At 4 P. M., priming coat done; bottom-boards primed all over.

Galena, Kan., July 20. J. P. BRUMFIELD.

Six Inches of Leaves for Packing

I winter my bees on the summer stands by setting a box without bottom and with a movable cover over the hive, and packing about six inches of leaves on all sides and on top of the hive. The covers have a slope of six inches, and a bridge at the hive entrance gives the bees a flight at any time. No losses.

Payson, Ill.

DANIEL E. ROBBINS.

Mending the Cappings with Paraffine

I produce fancy comb honey in a limited way, and I find that my finest sections are frequently damaged by being broken, or the cells uncapped. As I use paraffine in numerous ways, I hit on the plan of mending the cappings with warm paraffine. Dayton, O., July 16. EDNA T. MAUTINS, M. D.

General Correspondence

A BEE-LINE THAT WAS NOT STRAIGHT

How Various Conditions Change the Line of Flight

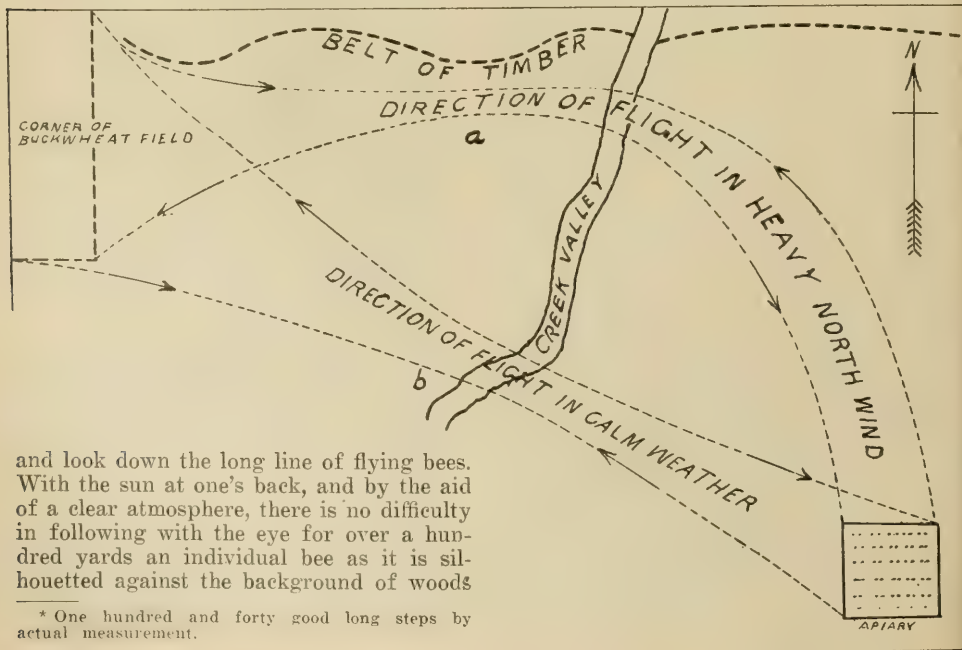
BY J. FORD SEMPERS

Most of us have been accustomed to accept without question the teaching that the bee's flight for home with her load of nectar or pollen is in a perfectly straight line. The "bee-line" has become the synonym for straightness itself. Possibly we owe this belief to the bee-hunter's tactics, who, in liberating a bee from his box, is guided by the course which it finally takes after having made its preliminary circles about him in finding its bearings. It is not likely that the hunter or any one else knows how the bee flies after it once gets beyond the range of vision. It may go in a straight line or it may not, and he is none the wiser. All he knows is that it started in a certain direction, presumably toward its home.

There are certain combinations of light and shade, topography and atmospheric conditions, by which it is possible to watch the flight of an individual bee for a considerable distance, a hundred yards or more.* For example, my yard is something more than that distance from a favorite moist sandy stream-bank to which the bees go in great numbers for water. The yard is on a hillside perhaps fifty feet above the stream. One can, therefore, stand near the apiary

in the valley below. This short flight is in a straight line if the air is calm. I have not been able to watch the course taken when a strong wind was blowing except when it came from the northeast. With such a wind the bees invariably describe an arc of a circle, the "bend" going toward the direction from which the wind is blowing, and the curve becoming deeper as the wind increases. Whether the bees behave in the same way when making a flight of one, two, or three miles is a question likely to remain unanswered unless possibly under some unusual circumstances, as in the present case I am relating, where conditions favor the definite outlining of the course taken.

While it is next to impossible to watch the flight of a single bee except for a very short distance, there is not so much difficulty in following the line established by a large number of bees between the apiary and some attractive forage grounds, when there is a general dearth of nectar or pollen elsewhere. During a general honey harvest the bees are scattered in every direction, and there is no way of knowing what course is taken after once the bees are beyond one's vision. Conditions favoring the formation of what I may for convenience call an audible or visible bee-line are just the opposite of those existing during a general honey-flow, since in the case favoring the



and look down the long line of flying bees. With the sun at one's back, and by the aid of a clear atmosphere, there is no difficulty in following with the eye for over a hundred yards an individual bee as it is silhouetted against the background of woods

* One hundred and forty good long steps by actual measurement.

formation of a bee-line, the bees are all concentrated toward a comparatively small spot. They are all moving over the same course to and from the apiary—all bent on the same errand, with the result that we have a buzzing, roaring, aerial bee highway between the apiary and the point being visited.

Under favoring conditions it is not so difficult to follow such a bee-line for fractions of a mile at least, depending mainly as a guide on the noise made by the bees. It is one of these bee-lines that I shall endeavor to describe. In the past ten or more years I have noticed a number of them. The one illustrated by the accompanying diagram occurred late in August, 1901. The diagram was made at that time. A number of other lines have taken place since, but these were less pronounced, or at least not so easily followed. It is very noticeable, if the weather is fair with little wind, that the course taken is apparently straight and high in the air. If threatening, lowering weather prevails, the flight is low. In the case of high winds I presume the flight may become any thing but an orthodox bee-line. The diagram shows how completely the bees have altered their course (at least in this instance) that they may make the most of prevailing conditions.

It was by accident that my attention was called to this spectacle. I had been working for several days on an out-building near the beeyard (to the west of it), and had noticed the line of bees passing daily back and forth over my head. The weather was warm, humid, and threatening rain, which, however, did not come, so the conditions were just right for nectar secretion. This was followed by a sudden clearing at night, a decided drop in the temperature, and high north winds. Resuming my work in the morning following this change I at once missed the busy hum overhead, and concluded that the change in the weather had cut off the nectar. Glancing over at the apiary I was puzzled to see the bees still working almost as busily as ever. My curiosity was at once aroused. I soon found the bees were flying in a nearly northerly course instead of the westerly direction which took them straight to the buckwheat before the heavy wind set in. Following the new line I found the bees were heading for a belt of timber to the north of the apiary, which extended in a westerly direction to the buckwheat. The line turned rather sharply to the west just before reaching the timber, the bees flying just below the tree-tops, *out of the wind* until the buckwheat was reached. They were quite

low; and as a part of the course ran parallel with a public road they attracted the attention of passersby, several of whom asked, "What is the matter? Are your bees going to swarm?"

At points just west of the stream (*a* and *b* on the diagram) the bees flew remarkably close together, and the very loud hum could be heard by one approaching, long before a bee could be seen. The bees in the fair-weather course were invisible except a few stragglers who evidently made up the lower edge of the line.

I have noticed once in a while in GLEANINGS some reference to these bee-lines, but am uncertain if the subject has been dealt with in detail. Possibly the topography may have played an important part in the behavior of the bees.

I may add that the belt of timber referred to extended unbroken for a mile or more to the north and west of the buckwheat-field, thus giving the bees a complete windbreak. I should also explain that buckwheat is seldom sown here, and it rarely happens that more than one field is within range of the bees at the same time. Coming into bloom at a time when there is a general dearth of nectar, the bees make a great fuss over it every morning as long as it lasts.

Aikin, Md.

THE EFFECT OF WINDBREAKS IN WINTER

Tenement Hives and Outyards

BY H. G. QUIRIN

The Sept. 1st issue ought to be worth a small fortune to the beginner, as it deals with one of the most vital problems that he has to contend with. We, too, thought that a tight board fence would be a fine thing as a windbreak; so, three years ago, we constructed about sixty rods seven feet high; but last winter changed our mind on the subject, as the snow drifted inside the fence four to six feet deep. It packed, and eventually formed solid ice far above the entrances; to give them air we dug down to the covers and raised the cushions; but most of the colonies having ice above the entrance of the hives did not come through in very good shape. Were it not for our queen-rearing nuclei we would certainly take down this fence, but find it a fine thing to shield them from the winds in early spring.

We have another yard located on the south side of a woods. This woods is about as bad for catching the snow as the tight board fence. We have still another yard

located right out in the free open, and one would naturally suppose this yard would have perished; but the colonies wintered nearly the best of all. The only protection this yard had was some buildings about forty rods away on the west side, and a small copse sixty rods to the north. There was nothing around these hives to catch the snow, and the ground had not more than six or eight inches of snow on it at any time. Then as soon as it warmed up the snow melted and the ground was bare. Not so at the other two yards. There was ice around the hives and nearly over the entire yard till quite late, and every little sunshine that brought the bees out caused them to drop in the puddles of water, and the colonies kept growing weaker.

We have a fourth yard, which was located in a hollow or sort of cove. This yard usually winters without the loss of a single colony, and on our last visit last spring nearly every colony covered ten frames. It seems, however, that fate decided that these bees should not gather honey for their owner; for, a day after our last visit, the sun came out warm, and the snow was turned to water. The bees were located near a river with an ice-jam a few miles below, and a milldam a few miles above, and when the ice went over the dam it backed water two feet deep into the beeyard. No water was ever known to come up anywhere near the yard, and we have come to the conclusion that rivers, like many other things, can not be trusted.

The hives we winter in are of the tenement pattern, and also the old-style Root chaff hive. The tenement hive winters the bees the best, but it is not so handy to work with. The bees remain in the tenement hives winter and summer, with one large chaff cushion stamped down tight. The four colonies are then in winter quarters, and they require no further attention till warm weather in the spring. These tenement hives are a fine thing for outyards, especially when stock is turned in the orchards or yard, as they are proof against being knocked over; but it takes two to four men or a derrick to load them on a wagon for moving.

Bellevue, Ohio, Sept. 2.

[This problem of windbreaks to shield an apiary during winter is a perplexing one. But we think we have determined that a solid high board fence is not as good as an open fence, nor yet as good as low shrubbery by which the force of the wind may be broken—or enough so that it will not strike the hives with a blast. A solid board fence causes the wind to glance up-

ward. It then dives down, hitting some hives with peculiar force.

We were pretty well satisfied last winter, and especially in the spring, that hives having entrances facing a stretch of country without a windbreak, where the wind could gather momentum, suffered much more than other hives in a more screened position. Indeed, many of the former died outright. Hives with exposed entrances almost invariably were in bad condition.—ED.]

THE ESSENTIALS OF TRUE SALESMANSHIP

BY R. A. NUSBAUM

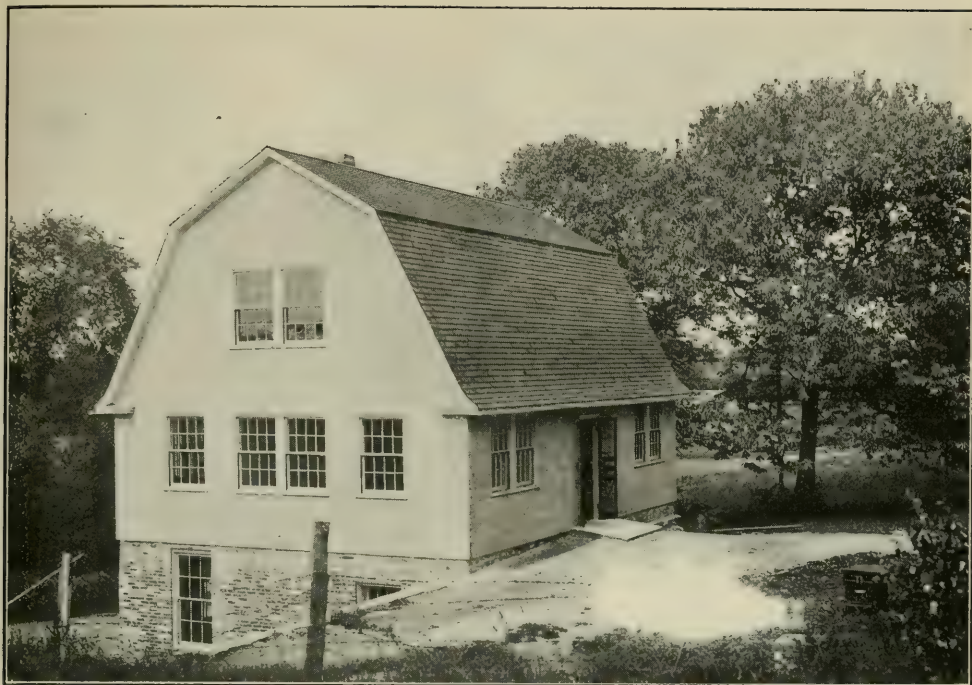
Can we not get something started in the press that will cause the "mob" to buy honey for the same reason that they buy "grape-nuts," "food shot from guns," "meadow gold butter," etc.? Of course that would cost more money than most of us would care to spend; but I believe it would pay as well as any thing else.

Some of us have sold large quantities of honey by making a personal call at the home. In a very few minutes we have made a good sale to Mrs. Jones, who just a few moments before had never an idea of purchasing any of God's choicest gift to man.

Honey can be sold just as easily as vegetables, books, flavors, etc. In order to do this successfully one must have a carefully prepared speech, or what a book agent calls his "canvass." This talk must be so arranged that it will lead the prospective customer through four distinct mental processes: First, he must get the attention of his prospective customer; second, he must develop an interest in the article sold; third, he must create a desire on the part of his prospective customer to possess this particular article; fourth, he must induce action—the order or sale. In the first place, these four steps are absolutely necessary in making any and every sale.

I venture to say that many beekeepers try to sell part of their crop every year without knowing the very fundamental rules of the salesmanship game. There should be a "canvass" built on attention, interest, desire, and action—the four corners of the foundation upon which all successful salesmanship is built. I think it should not be more than eight or twelve minutes long. A well-worded and balanced canvass should be worth hundreds of dollars to any one who has to do with the sale of honey.

Cleveland, O., Sept. 8.



New apicultural building at the Massachusetts Agricultural College, Amherst, Mass.

FIELD MEET AT THE MASSACHUSETTS AGRICULTURAL COLLEGE

BY A. W. YATES

The field-day and special meeting of the Hampshire, Hampden, Franklin Beekeepers' Association, held at the Massachusetts Agricultural College, Amherst, June 12, 13, 1912, was largely attended, many being present from out of the State.

The morning of the first day was given up to sight-seeing and the examination of the products of manufacturers and queen-breeders, of which a large hall was filled. Some of those making these exhibits were: O. F. Fuller, F. M. Keith, A. W. Yates, Dadant & Sons, queens and queen-rearing; H. F. Davis, F. Danzenbaker, Gus Ditmer Co., H. H. Jepson, Kretschmer Mfg. Co., E. M. Nichols, Ross Bros., supplies.

There was also a large collection of hives, implements, honey-packages, curiosities, and literature in the collection of the college, that was very interesting.

The speakers of the afternoon of the first day were A. W. Yates, of Hartford, Ct.; subject, "Bees in Relation to Fruit Culture and Plant Life," and R. H. Holmes, Shoreham, Vt.; subject, "Securing Fancy Vermont Honey." After this a demonstration was given of an electric

foundation-fastener by H. F. Davis. Mr. F. Danzenbaker explained the improvements on his new hive, and showed a case of fancy section honey produced in one of them.

All then adjourned to the apiary building. Dr. Gates explained the features of the new building, including its two floors and basement. Special attention has been paid to lighting and ventilation. On the first floor are a large laboratory and workshop, a room for the separation of commercial honey, and an office. The upper floor has three good-sized rooms. In the basement are the storage rooms for the wintering of colonies, the heating plant, and apparatus for wax-rendering. In the college apiary, which is located in a sheltered place on the hillside above the building, Mr. Keith gave a demonstration of cell-grafting that was very instructive.

The evening was taken up by the address of welcome by President Kenyon, L. Butterfield, and an address by J. Lewis Ellsworth, Sec'y State Board of Agriculture. Dr. James P. Porter gave a very interesting illustrated lecture on "The Life, Habits, and Development of the Honey-bee," showing the different stages of development from the solitary bee.

In the forenoon of the second and last day Dr. E. F. Phillips gave an idea of



Another view of the collection.

what was being done by his department in the federal government in regard to bee diseases and the extent to which they are scattered over the country. He also gave a demonstration of the treatment of foul brood by shaking the bees from the comb. This was watched with much interest. Beekeepers should feel thankful that this Department is taking such an active part in the protection of our bees, and that we have so able and enthusiastic a leader at its head as Dr. Phillips.

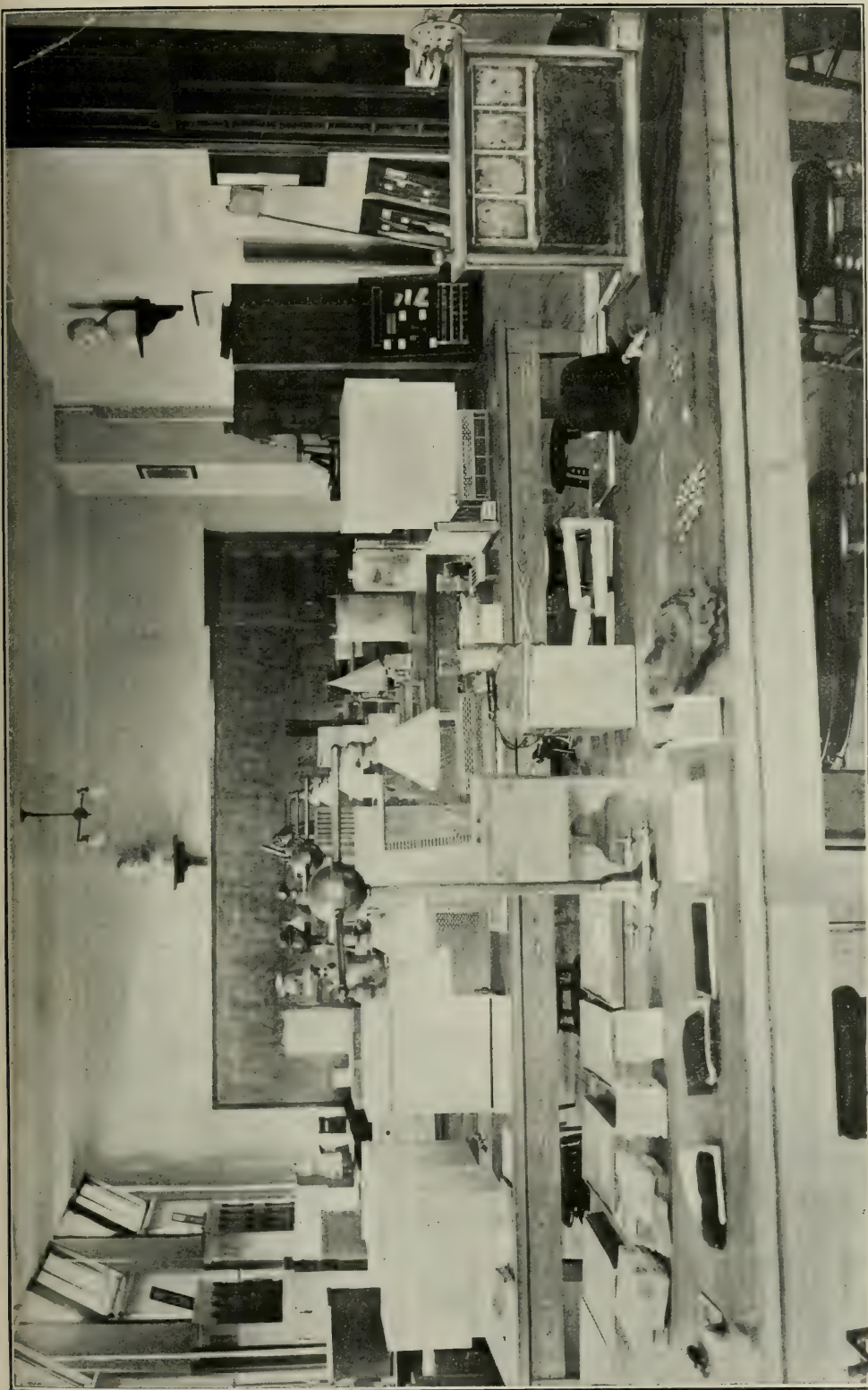
Dr. J. B. Paige demonstrated the use of new tools, etc., for beekeepers, and O. F. Fuller showed his queen-rearing outfit in operation.

Methods of shaking swarms, etc., were explained by H. F. Carey and others.

Beekeeping in Massachusetts is coming into its own. Not only are established beekeepers receiving aid, but new comers are being brought into the ranks by the work of the beekeeping department of the Massachusetts Agricultural College under the able direction of Dr. Burton N. Gates. Begun about two years ago in a small and modest way, the department under Dr. Gates has grown in size and scope until now it is doing a really important service to the beekeepers of the State. A thoroughly practical course in management and manipulation offered to regular students

at the college is but one phase of the work which is being done for beekeeping in Massachusetts. A short history of beekeeping as an art supplements this practical course. Other lines of work carried on by the department are State inspection of apiaries with a view to combat and control the two most important bee diseases—American and European foul brood; the offering of courses to those attending the two weeks short course held in May, and general instruction of beekeepers.

The course offered to the regular students is one of the very few given in this country, there being, perhaps, but two other colleges, at the most, giving instruction in this work. Over 85 students enrolled in the course, attesting to its popularity and value. The nature of the work, of course, requires that much of the time be spent in the laboratory. During the winter months the time is occupied with setting up hives, nailing frames and other hive parts, and the study of mechanical hive manipulation. When the weather becomes more mild, considerable attention is given to the management of colonies, the study of swarming, the taking care of swarms, wax extraction, and other important work that confronts the practical beekeeper. Working with the idea that proper management depends directly on the intelligent study of the habits



General view of the apicultural exhibit at the spring convention held at the Massachusetts Agricultural College.



One corner of the exhibit room.

of the bees, so called "rules" for beekeepers are discarded, and much time is given to the study and habits of the different castes of bees. Especial attention is paid to the habits of the queen with regard to swarming. A feature of the instruction is the short course offered to any one desiring to attend. Dr. Gates tells me that ten people registered from outside the regular enrollment of the college, and this would indicate that people at large are not too busy to give two weeks for practical instruction in this fascinating occupation. This is only the second year that the course has been offered, and the outlook for future development in this department is promising.

Since the course is short, only the most practical phases of beekeeping are taken up. A part of each day is devoted to lectures given by various members of the college faculty, and the remainder of the day is given over to laboratory work at the apiary building and actual manipulations of bees in the hive. This includes instruction in controlling swarming, treating bee diseases, getting the greatest total production of commercial honey. Study is also made of the wild flowers offering abundant nectar supply to bees. Of course, the natural range of nectar-gathering workers being so wide (often three miles) the

beekeeper can not hope to control to any little extent even the source of the nectar which his bees gather.

The equipment of the beekeeping department at the agricultural college is probably the best in the country, connected with instruction work. The offices of the department are at present under the same roof with the Department of Entomology. In the same building is a large well-fitted laboratory and paint-shop where the practical indoor work is given. The most complete library of ancient and modern books on beekeeping is owned by the department. Several French and English works on the subject, bearing the printer's date of the seventeenth century, are to be found in this library. In addition there is a museum of objects of interest to beekeepers; hives and appliances of old and of the newest manufacture; a series of hives showing the development of the modern hive, and special tools as well as hives for observation of bees at work.

On the whole the convention was considered a great success. It showed the awakening interest that the people of Massachusetts are taking in beekeeping; and the work done at the convention is sure to kindle new enthusiasm in those who have, for some reason or other, partly fallen by the wayside.

THE SUMMER MEETING OF THE SOUTHERN IDAHO AND EASTERN OREGON BEE-KEEPERS' ASSOCIATION

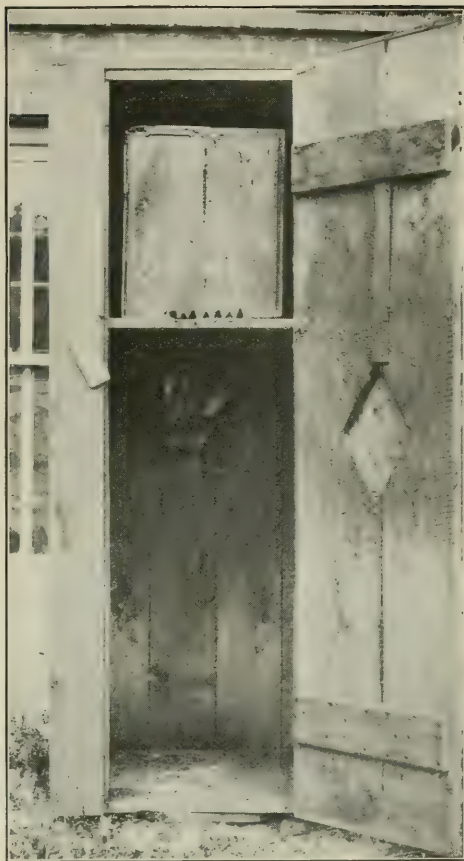
BY J. E. LYON, VICE-PRES.

One of the most pleasant as well as profitable gatherings of those who devote their lifework to the management of bees and the production of honey was the second annual field meeting and picnic of the Southern Idaho and Eastern Oregon Beekeepers' Association. The summer assembly is a comparatively new feature of the association's work, and was held at the apiary of C. E. Dibble, of Payette, Idaho, July 15. The purpose of this yearly gathering is to bring the apiarists of the State together during the time when the busy bees are gathering their harvest of honey for a good time socially, and afford a suitable opportunity for the discussion of timely topics in apiculture.

Between 35 and 40 of the leading beekeepers of the State were in attendance with their families. They came from such points as Boise, Meridian, Caldwell, Weiser, Payette, New Plymouth, Nyssa, Notus, and Ontario. They represent about 10,000 colonies of bees. Situated in the very heart



"Bee closet" at the apicultural museum, Massachusetts Agricultural College.



The "bee closet" open. The colony and brood-chamber is above the shelf, the surplus combs being below.

of a rich honey-belt of Southern Idaho, and with an apiary of 500 stands near at hand, the beautiful country home of Mr. Dibble was well suited for such a meeting, with its natural beauty and welcome shade.

A most sumptuous old-fashioned family picnic dinner was served out under the trees. The rustic tables were loaded with every thing conceivable to eat, with the hum of bees to be heard in the distance.

The president, W. H. Pennington, acting as toastmaster of the occasion, called the meeting to order. Mr. Dibble, as host, extended a cordial welcome to the assembled beekeepers. In a short talk, A. I. McClanahan, of Payette, expressed his belief in a large crop of honey this year. The editor of the *Gem State Rural*, A. E. Gipson, spoke upon the subject, "Our Sister Beekeepers." Mr. Gipson has been with the association since its organization, and has the utmost confidence in the bee industry.

Professor Wilson, of the Oregon Agri-



The entrance of the "bee closet" through the wall.

cultural College, delivered a practical address to the beekeepers. At Corvallis, where the college is located, Professor Wilson has a large class in beekeeping, a course covering a year's work. He has traveled through various parts of the United States, becoming acquainted with honey-producers. The most important element in the beekeeping industry, he said, is co-operation among the producers, which enables the buyer to secure a higher grade of honey, and the apiarist a greater compensation for his product.

An interesting discussion then followed concerning the relative merits of the single and double tier shipping-case and the best ways to grade honey. Practically all the beekeepers in Idaho use the single-tier case. As to grading honey, general opinion favored the eastern grading rules. All recognized the expediency of a plan by which representative producers and buyers could mutually agree upon a set of rules. A motion was carried for the appointment of a committee to confer and recommend to the winter meeting of the association the best style of shipping, and a uniform

set of grading rules. Crop conditions in Idaho, and the sale of honey were subjects then taken up. The beekeepers of Idaho recognize the folly of cutting prices. They realize that honey will be more carefully graded, and better prices secured, when they do not undersell, and especially when they market their honey through one medium. This concluded the formal part of the program.

BEE PARALYSIS PREVALENT IN SOUTHERN IDAHO.

A subject receiving perhaps more attention than any other, and informally discussed, was that of bee paralysis. This menacing disease is widespread throughout Southern Idaho. Not excepting foul brood it is, perhaps, the greatest enemy to apiculture in this State. It makes its

appearance most noticeably between the first and second alfalfa flows; but it may attack an apiary at any time during the summer. It has been known to destroy the complete working force of an apiary. A shortage in crop can many times be traced to the harmful effects of this disease.

There were almost as many remedies offered as there were beekeepers present. Many apiarists described various methods for treating each hive separately. Most of these methods have failed. The reason for this, we believe, lies in the fact that in Idaho the whole apiary is infected if one hive shows symptoms of it. Such has been our own experience. Bees by the thousand will be found crawling from the hive into the grass to die. But these can be seen only during early morning or on very cool days, which explains how the strength of an apiary can be diminished before the apiarist is aware of it. When attacked by this disease, the abdomen of the bee is greatly swollen, and black and shiny. There is a fluttery motion about the wings. If a personal reference may be pardoned, the most effective way to deal with this disease,



J. M. Lewis' method of packing bees for winter. The colonies are placed under the shed in the fall, thin boards placed in front, and leaves or straw packed tightly around the hives.

judging from extensive experiments made with bee paralysis, is through the agency of salt water, sulphur, and carbolic acid. These remedies have been recommended many times. But the difference of opinion arises as to how they should be administered. Again, referring to our own experience, we have found that in treating paralysis immediate results must be secured. Any such method as requeening when practically the whole apiary is infected is out of question. To prevent is wiser than to cure this disease.

Despite the prevalence of bee paralysis and foul brood, beekeeping in Idaho is a growing industry. While only in its infancy, its future is assured. Idaho is pre-eminent in two industries—agriculture and fruit-raising; and it is altogether probable that, from year to year, orchards whose fertilization is best secured by the bee will continue to be cultivated, while a great abundance of alfalfa, our main honey plant, will be produced. The demand is for specialists, men who thoroughly understand apiculture, so that they may intel-



Summer meeting of the Southern Idaho and Eastern Oregon Beekeepers' Association at the home of C. E. Dibble, Payette, Idaho.



Field meet of the Canterbury Beekeepers' Association, held at the apiary of the president, A. Ireland, Brookside, N. Z.

ligerly cope with existing conditions. The men who engage in beekeeping in Idaho are a splendid class of citizens. They are building up an industry of which the State may justly feel proud. They are broad-minded and progressive. They adopt the latest methods in beekeeping, as the scientific farmer does in agriculture. Brought into constant relation with one of the most interesting subjects in all science, engaged in a calling which, next to agriculture, is perhaps the most ancient, they respect the rights of their fellow beekeepers. They do not infringe upon another's territory.

It is safe to say that the beekeeping industry will play an important part in the Gem State in building up a great agricultural commonwealth.

Boise, Idaho.

FIELD DAY OF NEW ZEALAND BEEKEEPERS

BY E. G. WARD

I am sending you a photograph taken at our last field day. The members of the Canterbury association, with their friends, went by coach to Brookside, on March 17, to the apiary of the president, Mr. A. Ireland, for their annual field day. The situation is an ideal one, having a large

belt of trees on the south which protects it from the cold winds. There are acres of white clover within one-fourth mile, and plenty of willows. The company was kept in the best of humor by the Scotch jokes and stories told by Rev. Mr. Jackson, of Southbridge. The season in this part of New Zealand has been the worst for 20 years; but we all look forward to a bumper crop next year.

St. Albans, Christchurch, N. Z.

SHED FOR PROTECTION

BY J. M. LEWIS

The photograph of one of my sheds shows how I protect my bees during the winter. The plan has proven very successful in Southern Massachusetts, where we have long cold winters. My method is very simple and inexpensive. I put thin boards on the front and back of the hives, first placing the hives a foot apart, and on a straight line, leaving a space sufficient for the packing. After placing a board above the entrances to allow the bees to leave and enter the hives during weather when they make their winter flights, I pack straw or leaves tightly around the hives. I put on an empty super with a super

cover between the brood-chamber and super with a hole made sufficiently large to take a feeding jar so the bees can be fed at any time when necessary.

The packing on top can be taken off and replaced in a moment, and the condition of the bees determined at any time. My covers are all made with glass in them, so by simply removing the straw on top of the hive and lifting off the hive-cover the bees can be seen and the jar can be filled with syrup without exposing the bees to the temperature outside the hive. When the weather is such that there is no danger of the bees leaving the hive I set up a board in front to protect the entrance from cold winds blowing into the hives.

I have tried several methods of wintering my bees, but like the method described above the best of all.

North Westport, Mass.

A COMBINED HONEY-HOUSE AND HIVE-SHED

BY L. H. COBB

In designing my building I had especially in mind an inexpensive combination of honey-house, hive-shed for shade, and winter protection, an overhead track for handling hives and supers, and cement hive stands. The diagrams are almost self-explanatory, but I will give a few details.

The honey-house, shown in Fig. 1, is 12 feet square, and the extracting platform, shown in *a*, Fig. 1, is $4\frac{1}{2}$ feet wide and 7

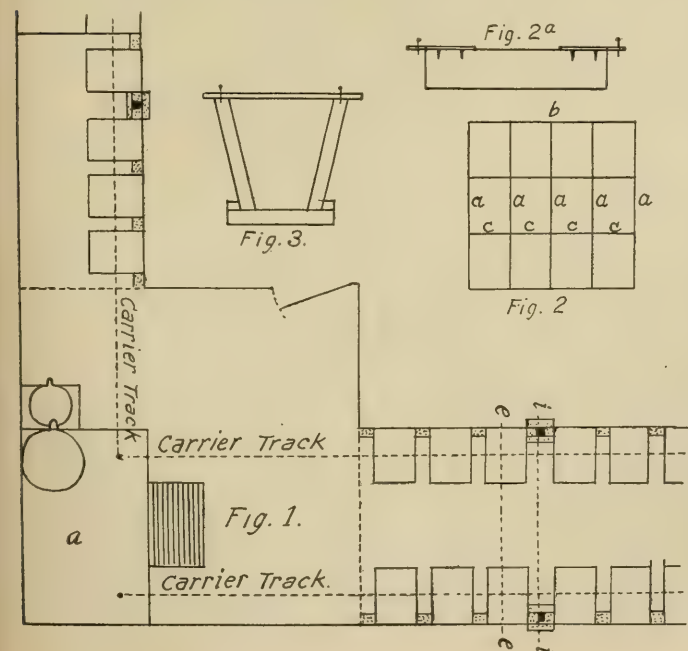
feet long. Either screens or doors may be provided between honey-house and hive-sheds if desired.

In this diagram the hive-shed *b* is 7 feet wide, and may be made any length, allowing 6 feet and 6 inches between posts for every three stands. This shed extends south, and takes two rows of hives. The hive-shed *c* extends east, and another may be extended west.

The upper sections of the side of the hive-sheds are hinged so they may be extended at will, and the lower sections are removable. Both of these sections are made in $6\frac{1}{2}$ -foot lengths, extending from center to center of posts, one foot square. *d* in each figure shows the track for the ordinary barndoor hanger. Figures 2 and 3 show forms for the cement stands. At Fig. 2 *a*, a dozen may be made at once. For this form I cut five pieces of 1 x 2, 6 feet and 2 inches long for pieces *a*; two pieces 6 feet 5 inches long for pieces *b*, and eight pieces 18 inches long for pieces *c*. On the upper edge of pieces *c* I nail two pieces of narrow galvanized iron, allowing it to extend over the end one inch, as shown in Fig. 2 *a*. A tack can be driven through these ends into pieces *a*, thus holding the short pieces in place. I nail pieces *b* on the ends of pieces *a* so the spaces will be just 18 x 24 inches. The concrete mixture I prefer is one part cement to two parts sand and two parts cinder. If these are made on the cement floor of the honey-room the floor should be oiled or soaped thoroughly first.

Fig. 3 shows the form for the base of the hive-stand. This form should be made of two-inch material. It should be four inches at the bottom, six at the top, and eight deep inside. It should be six feet long, and should have one end movable. The base for the front of the hive-stands is also the base of the side walls of the hive-shed, and should be just long enough to fit snugly between the square cement-post foundations, or $5\frac{1}{2}$ feet. For the back bases I use partitions of the form, making three blocks 18 inches long.

The houses and sheds may be covered with roofing felt, and cheap lumber used for the frame.



Bee-escapes should be provided where needed, and windows as desired.

This makes a compact arrangement for a medium-sized apiary, and one as convenient as we can conceive of, with protection from sun and bees while working, where there are no boards on the ground to rot, where no toads or mice can find harbors. In hot weather I remove the bottom-boards and put blocks under the corners of the hives to reduce the swarming tendency. I open the sides for shade and ventilation, or close them for protection from the cold. A little heat in the honey-house will keep the temperature above the killing-point during the coldest weather.

Basehor, Kan.

A WINTER'S WORK IN MAKING HIVES

BY A. H. BELL

There is one thing which ought to interest a great many readers of *GLEANINGS*; and that is, the range of work required of one man in connection with the bees and the apiary, such as making hives, supers, frames, nailing up and wiring frames, fastening in foundation, etc.

The past winter I began to make preparation for this year's crop and increase. I make my own hives, supers, frames, etc., just because lumber here is cheap and I can make just as good hives and fixtures as I have ever been able to buy. Jan. 1 I started my combination saw, which is run by a five-horse-power gasoline-engine, and finished up May 1. During that time I hauled all my lumber from Roundup, 11 miles distant, and cut out 135 ten-frame hives, corners halved to nail both ways. I made telescope covers having tar-paper on top, with inside cover and reversible bottom for about 400 ten-frame shallow supers $5\frac{3}{8}$ in. deep, halved at corners, and all hives and supers handholed. I also made 4000 shallow extracting frames and 1500 Hoffman brood-frames, all pierced for wire.

As soon as I had every thing sawed out I moved out the saw to make room; then I began nailing hives first and then supers. Then came the frames, nailing both brood-frames, and extracting at the rate of 800 a day. While wiring I wired 700 extracting frames with two wires each and 600 brood-frames with three wires each. In these frames I put full sheets of foundation, using 400 pounds. I found this somewhat slower work. The best I could do in an hour was to put 80 sheets in the shallow frames. But the whole job ran only 600

sheets per day, while with the brood-frames I averaged 350 per day. This includes imbedding the wire with a spur imbedder, and placing frames in the hives and supers.

The difference in number between extracting and brood frames is due to the fact that I fastened the foundation in extracting-frames with melted wax and a Vandusen wax-fastener, while my brood-frames were quarter-sawed. I used the quarter strip to nail in the foundation. This is a very good way to hold the foundation, but it is a good deal slower.

I then painted every thing three coats of white lead. All this work was done by myself, and May 1 found me ready for a crop of 30,000 pounds of honey.

All the sawing was done on a saw-table of my own make, which is a combination of every thing I could think of.

Elso, Mont.

THE WINTERING PROBLEM

Guesses vs. Facts; the Need of More Complete Data on which to Base Conclusions

BY ARTHUR C. MILLER

The symposium on wintering in *GLEANINGS* for September 1 is interesting, particularly in its graphic illustration of the careless "rule-o'-thumb" method of reaching conclusions prevalent among people not trained to the precise methods of the scientists. Just so long as deductions are made from the faulty, imperfect, and incomplete observations as recorded there, just so long will the practices based thereon fail to bring any thing like uniform results.

Citations of some of the factors not noted by the writers will serve to illustrate the imperfection of the data. One will fail to state thickness of packing or material used; another, the nature of the outer case, whether it is of thick or thin stock, and is virtually air-tight or the contrary, is or is not covered with a water-proof paper; the color, etc. Another, stating one or the other of these, fails to say whether tight covers are over the brood-nest or cushions, and whether the bees have a passage over tops of frames under these or not. A few other items may be enumerated, such as frames side or end to entrance; size of the latter; direction it faces; direction of prevailing winds; any gales or unusual atmospheric conditions; size of colonies (average variable in different years); queens old or young; breeding stop early or late; pollen stores, large or small; na-

ture of stores and abundance; whether bees were overhauled, and frames changed at all after final stores were gathered or supplied; whether the location is subject to thaws or fogs, or the contrary; whether snow on ground was above or below normal most of the winter.

Every one of the foregoing has its bearing on the results; and how few of even the more important ones have been mentioned by the writers! One person attributes his success chiefly to one factor, while the next man lays emphasis on quite a different one; yet as a matter of fact the favorable results are quite as likely to be in *spite* of either item which these men deem so important.

In taking temperature of the interior of the hive, the methods recorded are most imperfect. Putting a thermometer on top of the frames over the cluster gives only one item—namely, the temperature *near* the upper side of the cluster; and *how* near the writers fail to state. Was the cluster close to the top of the frames or even up over them? Or were the bees one, two, or three inches below inch-thick top-bars? Was the cushion laid on the thermometer and frames, or was there an air-space? Was the thermometer read through a pane of glass, or was it taken out? There is but one accurate way to get hive temperatures, and that is to use special thermometers with long stems, placing enough of them in the hive so the temperature of the air near the floor, half way up and at top, both near and distant from cluster, may be secured. Also, temperature of cluster and air directly above it should be obtained. In addition, if chaff or other packing is used, temperature of this over the top of the cluster, and distant from it, is desirable.

The special thermometers are made so the scale to be read is above the hive, and readings can be made without removing the thermometer or disturbing the bees. The readings should be made hourly, both night and day, at least in the fall and spring, while in the really cold weather six times in the twenty-four hours may do.

The "curves" plotted from these readings in hives differently protected can be compared with "curves" from similar data taken in unprotected hives; and with the outdoor temperature a real basis for work will be reached.

Mr. Britton cites his results with glass-topped hives from which he removed the top packing and later substituted black tarred paper. The disastrous results could have been foretold without need of demon-

strating. Moisture was bound to collect on the cold glass, and drop back on to the bees. With an entrance as small as stated, and with eight to twelve inches of packing around the hives, no other result could be secured. The black paper could afford no material relief under such circumstances. His citation of results of colonies in his attic serves to call attention to the fact that bees so placed have their hives surrounded by a temperature of about 50 degrees F. all winter.

As examples of how bees thrive under conditions as opposite as possible to the warm-packing theories, the following may be cited. These I have perhaps referred to before, but they are worth repeating. In the western part of New York two colonies were left to their own devices after having been set, early in the season, inside of large cupboard-like structures which served only to shut off the sun. Four or five entrances about three by twelve inches gave ample circulation of air through the cupboards. The floor of these was 18 inches above the ground. The bees were in ten-frame Langstroth hives set on three-inch rims, and without cover of any sort. When I saw them in March there were visible several fins of comb built above the top-bars, and the bees were sticking up on these and hanging below the frames, just rousing big colonies—plenty of air, to be sure, but no dampness.

The other example is more in Mr. Britton's line. A ten-frame Langstroth hive made of glass, and having a top of wire cloth, was placed on a slat stand about two feet above the ground. Over the hive was placed a box nearly a foot larger each way than the hive. The front end of this box, except for a narrow board at the top, was knocked out. There was no bottom to it. In this hive was a good colony of bees. Shaded on all sides except the front, free circulation of air around it, with cold glass sides and ends, an entrance 14 by one-half inch, and wire-cloth top allowing free draft through it, that colony thrived for three summers and winters until put into another hive. This was in Rhode Island, twenty-eight miles from Mr. Britton's.

The exponents of heavy packing are asked to explain how the bees in these two instances could live, to say nothing of being exceptionally strong and healthy. It is to be hoped that they will not all speak at once. Also, they are requested not to remark that "one swallow does not make a summer," for there were three in this case, and one of them made three summers and—winters.

Four items are pretty definitely shown, however, by the symposium on wintering; namely, the need of dryness, the advantage of some means of preventing condensation above the cluster, the necessity for wind-breaks, and that several hives grouped close together and packed in some "non-conductor" do accumulate heat in the packing above and near the hives. But—yes, *but!* Does the value of the packing lie in keeping the bees warm in *winter*, or in the fall and spring? in the fall, when they are putting the finishing touches on their supplies, and in the spring when breeding? Think twice, please, before you answer. That protection is of advantage from *early* spring until late fall has been pretty conclusively demonstrated; but *what* amount of protection is as yet in dispute. Some want the whole hive, including supers, inside of packed walls; others want merely double walls, and still others think protection about the supers suffices.

Results suggest that colonies in hives wholly protected, even if only by a deep telescope cover or thin outer case, do better from spring until fall than those having only the supers protected. If this is correct, then it is fair to believe that results from fall until spring ("wintering" we call it) are much dependent on fall and spring protection. In other words, safe "wintering" lies more in keeping the bees warm when they are getting ready for cold weather, and when they are getting ready for the harvest, than it does in trying to keep them warm in winter itself.

To summarize: We as yet have only a little and fragmentary knowledge of the real conditions which exist within the hive from fall until spring inclusive. Until we know more about those conditions we can not intelligently devise apparatus to assist the bees. Until we know those facts we are as likely to make and use unnecessary apparatus, costly to construct and costly in labor to use, as we are to omit important assistance. Or, to put it in the language of modernism, without exact knowledge we can not get down to a rational dollar-and-cent basis of beekeeping.

If our experiment stations will use their means and apparatus in obtaining the desired knowledge, they will help us far more than they have yet done. Such research work is in their line, and they can do it much better than the commercial beekeeper, even though the latter has the necessary training. To ask them to abandon their random experimenting and find out facts for us is what we should now do.

Providence, R. I., Sept. 12.

PRODUCERS URGED TO ORGANIZE FOR SELLING THE CROP

BY C. W. POWELL

The price of honey must be governed by the price of other things, p. 478, Aug. 1. Although the bees work for nothing and board themselves, the beekeeper must pay for his feed and other necessities too. Of course, honey at ten cents a pound will sell fast, especially when other things are a hundred per cent higher. When honey and butter both sold for ten cents it was all right; but when butter is forty cents and honey ten, honey and bread will be eaten without butter mostly. I fully agree with Mr. Lathrop, that honey should be sold at home when possible; but the law of supply and demand can not be divorced from the question of distribution, because all the honey and other things can not be produced where consumed nor consumed by the producer. Hence the necessity for distribution, which involves distributors, which cost the consumers of farm products in New York city last year 62 per cent of the retail price of such products. Think of it! The producer and the carrier got only 38 per cent of the price paid by the consumer.

Well, what can be done about it? Just this: Let the producers undertake to distribute for themselves. How? By mutual organization establish agencies in all market centers. Place agents in charge, and put them under bond to guard against loss from dishonesty. Now ship to such agents for distribution on his orders, and he will soon learn just what his market will need, and there will be no overstocking by duplicate ordering and then a scarcity because no one ordered. Let him sell at a price insuring a profit on production after deducting for transportation and distribution.

All kinds of stuff can be sold at a price that will at once double the consumption on account of placing it in the hands of consumers at a price they can afford. Bro. Lathrop's idea about the cheap price of honey making a greater demand for it is like the clothing dealer who could sell his clothing at less than cost because he sold so much of it. To sell honey at ten cents per pound when butter is forty cents would bankrupt any one except a clothing dealer. I have been in a position for over twenty years where I could study the question of distribution, and it is at present the biggest farce on the world's stage. In a certain case Texas farmers offered cabbage on board at shipping point for

40 cts. per hundred—transportation 40 cts. At my door I paid \$2.00 for it (2 cts. per pound). Think of it! Eighty cents to produce and deliver on our tracks, and \$1.20 to take from the car and deliver to my door! Yes, but some say there is a great loss in such stuff. But the loss is principally on account of having to hold the stuff too long in order to get a high price for it. The price is low enough, and with a perfect system of ordering and shipping, it would not be long on our hands. There will be fifteen or twenty cars of watermelons on the track at one time, when the daily demand is perhaps two cars or less, and they stand on the track and rot down in the hot sun, and the shipper not only loses his melons but the freight also. Then perhaps there will be days when there are none in the market at all. Now several dealers order them or they are shipped without orders, and each dealer must depend on guessing what his competitors are going to do, and so miss it badly at times. The producers are advised the market was overstocked, which accounts for the loss to them. The market was overstocked only by a poor system of ordering, and making the price so high that people who want them can't pay the price. We have to pay anywhere from 25 to 50 cents for a good watermelon. Who can afford to keep a family on them at such prices? A land indeed flowing with milk and honey! But who can afford to drink milk at ten cents a quart, or eat honey at 25 to 30 cents per pound, except the rich, and they are few in comparison with those who are not.

A shipment of eight bushels of plums was received in this market by a dealer who wanted three dollars per bushel; but the grocers could not handle them at that price, and six bushels at least were dumped, a dead loss to the *producer* and *consumer*, besides paying freight. All manner of fruits and vegetables are dumped rotten, not because everybody had all he wanted, by any manner of means, but the price was prohibitive.

Producers' associations are formed to increase prices to better the conditions of the producers, without a thought of the consumer who must use their products or there can be no profit. Starving the consumer by taking all his money for one melon when the same money would buy two, and give a good profit to the producer too, is a sin. There are two, and only two, who are vitally concerned—the producer and the consumer, and they are mutually interested, for each must depend on the other. If they will look out for

themselves the question of high cost of living is solved.

The 1911 apple crop is reported the largest ever grown in this country; yet the price never was so high. Why? Do the producer and the consumer know why? *They should.* It would lower the price fifty per cent to consumer, and yet pay a good profit above freight and distribution. Lowering the price of such things would increase the demand correspondingly. Every one should have all the fruits and vegetables he wants, though it be melons, peaches, pears, plums, etc., which are really luxuries. Then there would be a demand for more farmers, fruit-growers, etc., and the nation's blood would be stimulated anew.

Farm products are not the only ones which are manipulated to pay undue profits. You buy a piano. The dealer keeps at least one hundred dollars of your money. A rocking-chair you pay \$5.00 for cost the dealer \$1.50. As staple a thing as carpets are sold at a profit of fifty per cent above the invoice. I have been thinking over this thing for a long time, and am sure that a producers' agency will be much more satisfactory than a buyers' union, because everybody will be reached, whether he wants to or not; and the fewer you have to organize, the better.

I hope you will give this article a place in your pages at an early date, for it seems to me to be of vital present interest to the whole country and all people.

RIPENING HONEY ARTIFICIALLY

The Plan, while Possible under Certain Conditions,
is Not to be Advised Generally

BY W. B. BRAY

I was pleased to see the remarks made by Mr. Ireland, president of the Canterbury Beekeepers' Association, in your issue of May 1, regarding the artificial ripening of honey, and wish to confirm what he says. Mr. Hopkins has had a great deal of experience, and has done much good for the beekeeping industry in this country; but in this one thing I do not think his experience is conclusive. There is more than Mr. Hopkins' reputation as a beekeeper depending on a proper understanding of this subject, and I trust he will not be offended if I help to throw a little further light on the conditions prevailing in New Zealand. For close on to three years I was permanently engaged as a government apiary inspector, and my work took me into every part of New Zealand.

In his article on page 632, Oct. 15, 1911, Mr. Hopkins admits the possibility of another factor in the ripening process than evaporation—namely, a chemical change in the sugars. This would be the continuation of the process of inversion commenced by the bees, by which the proportion of sucrose is gradually reduced. For this reason alone it would be desirable to leave the honey on the hive till later in the season. Though it may be merely a matter of taste, the editor is right when he says that the honey which has the finest aroma is that which is extracted from well-sealed combs. It can be called flavor, aroma, bouquet, body, bite, or any thing else, but the quality is there. I remember extracting some honey which had been on the hive all the winter, and entering it in the show which was held too early for new season's honey to be entered. The judges said that mine was the only sample that had a good flavor.

But it is in the process of evaporation that a good honey can most easily be spoiled if it is attempted artificially, as then it depends entirely on the state of the atmosphere. Every one knows that a certain amount of water is held in suspension in the air. The amount will depend on the nearness to the sea, the nature of the soil, the configuration of the country, the temperature, and the variation between night and day temperature. For instance, in the hottest weather in my own locality the nights are cool and even cold, so that the moisture evaporated during the day is precipitated. A wind off the sea will lose its moisture in crossing a high range of mountains, and become a dry wind. A very rainy district does not necessarily have a humid atmosphere. It will depend, then, on the temperature of the air. In a warm climate, near the sea, and over low-lying land, the air is heavily laden with moisture. The humidity in any one locality may or may not be fairly constant, as a good deal will depend on the lay of the country and the direction of the prevailing winds. In the South Island of New Zealand the air is comparatively dry, and I have known cases where thin honey has been extracted and successfully ripened in tanks. In the North Island, however, the conditions are very humid, particularly in Taranaki and Auckland provinces, on the west and northern coasts respectively.

The evaporation of the surplus moisture of an unripened honey will take place if the humidity of the air is low enough to allow it to absorb more moisture. On the other hand, honey will readily absorb mois-

ture from an overlaid atmosphere. Each beekeeper can test the humidity in his own district by keeping a jar of already well-ripened honey exposed to the air, and watching for the surface to become thin and watery. If a hydrometer is used to test the specific gravity the honey should be well stirred before testing. The beekeeper can then judge for himself as to whether it is safe for him to expose his honey to the air at all. In the humid climate we have in Taranaki and Auckland provinces, I would advise that nothing but well-sealed honey be extracted, and that it be put in air-tight vessels the same day. If it is necessary to store it in a tank, the top should be very close fitting. For the reason given in the second paragraph of this article, I would not advise any one to extract any but fully or three parts sealed combs if he wishes to do justice to his honey and his customers. Honey that is unsealed at the end of the season, and that has been on the hives for some time, is ripe enough to extract.

Mr. Hopkins says he successfully ripened a large crop in tanks in 1883; but I think the conditions must have been exceptional for that locality for that year, or else it was an exceptional locality in the Auckland province. In a government bulletin he has advocated the artificial process of ripening, and numbers of beekeepers have taken it up. The result has been that a lot of soured and fermented honey has gone on the market. The use of the hydrometer will not correct the fault of excessive humidity in the air. The ripest honey (and it is very seldom that all green honey is being extracted) settles in the bottom of the tank; and when a sample is drawn off to be tested with the hydrometer it gives a fairly high specific gravity. Even if the hydrometer is put into the tank, it does not give a proper test, as the thin watery honey is in a layer at the top. It is the last to be drawn off and the first to ferment. Many beekeepers have not bothered to use the hydrometer, thinking it quite sufficient to leave the honey in the tank a week or two, often regardless of the condition it was in when extracted. It is this ignorance of the conditions governing the case that has caused a great deal of the harm done in this country by Mr. Hopkins' advocacy of the artificial method.

In 1910 I acted as judge at the Warkato show (Auckland), and the Hawera show (Taranaki). At the former show I found several entries fermented. The same occurred at the Hawera show; and out of 17 entries in the granulated class only four

were properly ripened. I had' to advise the beekeepers to discontinue the artificial method. The conference of beekeepers' associations in 1910 protested against the method being advised in Bulletin No. 18. In the Auckland salesrooms I have seen honey running out of the tins.

It is possible to ripen honey artificially where the conditions are favorable; but it is questionable whether there is any advantage gained. The late E. W. Alexander was in a favorable locality, and kept 700 colonies in one apiary. He was thus able to keep the extractor going as fast as the new honey came in, and it saved the necessity of providing extra supers. The beekeeper with one apiary can get along well enough with a couple of supers, and extracting only the sealed combs. The beekeeper with out-apiaries would prefer to provide the extra supers, and attend more to the putting-on of supers while the honey-flow lasted. The extracting is done afterward, and the one job is made of it at each yard. During the honey-flow the bees secrete wax in abundance, and are more contented if able to use it up in sealing the combs. The work of evaporation is carried on all night, and all together it is doubtful whether the amount of the crop is increased at all by extracting the green honey.

Salt is a substance which readily absorbs moisture, and it is safe to say that, where salt becomes damp, honey will do the same. I have had no experience with sections; but I should say that a good plan to prevent them from "weeping" would be to place a box of unslaked lime in the room where they are stored. It would keep the air dry.

Devauchelles Bay, N. Z.

THE NEW CAGE CANDY CALLED "FONDANT" BY CANDY-MAKERS

BY E. C. NEWELL

The candy for bee-cages is nothing but fondant that is used in high-grade candies. The best recipe is this: Granulated sugar, 10 lbs.; glucose, $2\frac{1}{2}$ lbs.; water, $2\frac{1}{2}$ quarts.

Put the water in the kettle; add the sugar. When it boils put a cover on for five minutes; then remove and put thermometer in the kettle. Heat the glucose; and when the boiling sugar reaches 235, add the glucose and cook to 242 in winter, 245 in summer. When cool enough to put the finger in, it must be creamed by stirring with a spatula. When creamed let it

stand a few minutes with a damp cloth over it. It will begin to harden, and must then be broken up and kneaded until soft. It then will keep indefinitely in a stone jar with a damp cloth over the top.

Two teaspoonfuls of cream of tartar can be used in place of glucose, but it makes an inferior article.

The cover is put on the kettle to be sure that the steam dissolves every grain of sugar; as a single grain, or changing the spatula from another batch, if you are stirring two, will make it granulate instead of creaming. A sudden jar to the kettle will sometimes have the same effect. Do not stir while boiling.

Commercial glucose is the article. Corn syrup is an adulterated glucose. Glucose comes in two forms—heavy and light, the first in ten-gallon kegs, the latter in barrels, and can not be bought here in the East in less quantities unless you know some confectioner who will let you have it.

While the fondant is warm it can be pressed into a frame and hung directly in the hive.

I do not believe in feeding in any but the Doolittle way (full combs of honey), but have had in New Hampshire frames filled with comb as the fondant was eaten away in the winter time in the cellar. Cane sugar is absolutely essential. If your fondant fails to cream properly you may know you have got more or less beet sugar.

I am not a confectioner, but have made candy for home consumption, buying glucose in original packages and sugar by the barrel; chocolate, 100 lbs. a year, etc. I spoiled 100 lbs. of fondant before I found out the last wrinkle, and a confectioner's supply house put me on to that.

Woburn, Mass., Sept. 5.

Plain Sections Easy to Handle

It has been stated that plain sections are harder to handle than the beeway; but I can not agree to that, for I have taken off over 1500 of them, and not one of them is bruised. I used beeway sections for over thirty years without separators, and I consider them much harder to handle, and also much harder to clean. I will use only plain sections in the future.

WIRING DANZENBAKER BROOD-FRAMES.

When wiring Danzenbaker brood-frames I cut the wire in exact lengths, which is easily done if some one else holds the end and throws it in the box after it coils up. In this shape the wire seldom gets tangled if one is careful to pick them up right. I drive the rivet back a little, put the wire around it, give a couple of twists, run it through the hole, then up to the hole next to the top-bar, finally finishing at the rivet on the other end-bar. With a small pair of pliers I hold the end, draw on the wire as though cording an old-fashioned bed, and when tight I wrap it around the rivet and drive both rivets back into place.

Clear Springs, Md.

C. M. HICKS.

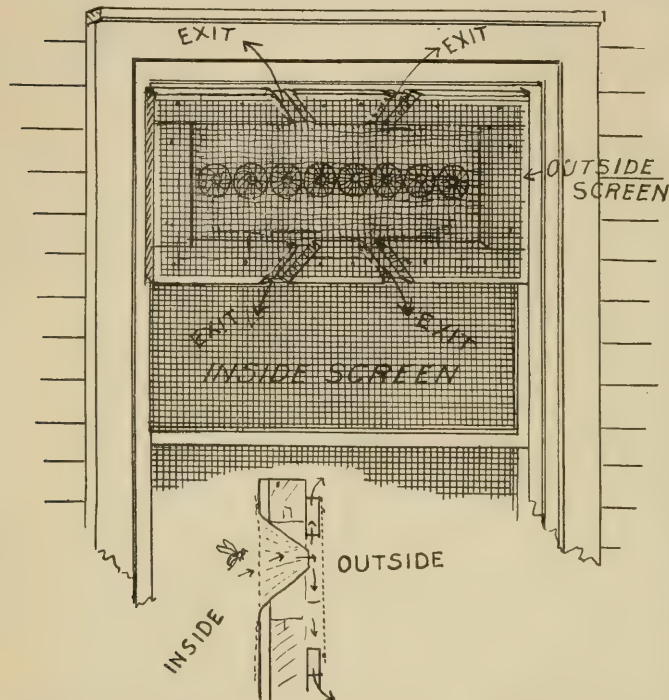
Heads of Grain from Different Fields

Honey-house Bee-escape

I have a honey-house bee-escape that has never failed us. It is made up of a series of wire-cloth cones inserted in a 1½-inch space on top of the window-screen, with a double set of flat wooden escapes on the outside, which is covered with wire cloth. I have yet to see the first bee that has returned by the way it came out, and it lets them out by the droves.

J. E. THOMPSON.

Halfway Tree, Jamaica, B. W. I.



[This looks as though it might be a good honey-house bee-escape. The additional screen over the top of the cones would prevent the bees from going back. The only objection we can see to it is that it is complicated to make.—ED.]

Honey from Second Crop of Clovers

At present bees are working on the second crop of red, white, and alsike clover, and goldenrod. They are giving more trouble about swarming than at any time this season, although I have put supers on every colony.

NEWLY INTRODUCED QUEEN LAYS AMONG QUEEN-CELLS.

I let a laying queen run into a colony for fun, with queen-cells ready to hatch, and found her next day laying on combs among the queen-cells.

Derby, Vt., Aug. 25.

NEWELL H. WILSON.

[The second crop of red clover has yielded more this year than for some seasons back. It should be remembered that the corolla tubes of the second crop of red clover are much shorter than those of the first crop, provided it has not been too dry when it comes into bloom.

Letting loose a laying queen into a hive having queen-cells sealed over, would, in our opinion, nine times out of ten—yes, ninety-nine times out of a hundred, prove a failure. That it worked in your case was the exception that proved the rule. The hardest colony, in our experience, to introduce a queen to is one that has queen-cells pretty well advanced—especially those that are ripe and ready to give off a virgin.—ED.]

Eggs Hatching by Artificial Heat

I think Dr. Miller, page 301, May 15, will find that the eggs of bees, if kept continuously warm, will hatch without the presence of the bees. I very well remember removing from the supers a number of sections in which the queen had started to lay. For want of a better place they were carried into the kitchen temporarily. At that time we were sweltering in the midst of a hot wave. A few days later, in removing the sections I was surprised to find very young worker and drone larvae instead of the eggs.

J. FORD SEMPERS.

Aikin, Md.

[We have had other reports from beekeepers who find that eggs of queens, if the temperature is right, will hatch without the presence of bees.—Ed.]

Bees a Feature of the Hamilton County Fair

The Hamilton County Agricultural Fair at the Carthage fairgrounds was a success in every detail to all concerned. The horse races, fine poultry, hogs, cattle, the bees, and balloon ascension drew big crowds the four days of its duration. The weather was fine, which accounted for the large attendance of city and country folk alike. City folk appreciate the country fairs more from year to year. They realize that the farm and suburban gardens must go hand in hand with the manufacturing interests. Electric cars and automobiles bring the city and country nearer to each other than in former years when people relied mostly on omnibuses and road wagons. In no line of rural production has science done more than in the keeping of the honeybee. "There is nothing at a county fair that the visitors are more interested in than in live bees in observatory hives." This is the opinion of Mr. J. G. Creighton, who had charge of the bees, honey, wax, honey vinegar, and bee-supplies at the Hamilton Co. fair. Mr. Creighton received a first prize on the four first-named articles; Mr. Charles H. Weber first prize on bee-supplies; Mr. Wm. Schmees second prize on live bees. Mr. John J. Leonard won a second prize on comb and extracted honey. Mr. Creighton is quite an enthusiast on county fairs. He resides at Harrison, O. Mr. Charles H. Weber and Mr. Wm. Schmees are from Cincinnati. Mr. Leonard makes his home in Elmwood, O.

HENRY REDDERT, Sec.

Too High a Price Makes Honey a Luxury

I heartily agree with Harry Lathrop, Aug. 1, p. 478. I have followed the same plan of selling honey direct to users, at a low price, with the idea of making it a popular food. Working for a higher price strikes me as a class luxury. I do not know that it can generally be done until there are more beekeepers.

Bergville, Minn.

A. B. WHITE.

Large Number of Swarms Captured in Boxes

On p. 466, Aug. 1, A. I. Root stated that there must have been a terrible stampede of runaway swarms in this part of the section. Now, though I have been here only since April 4 I have seen more than 75 swarms captured in the same way, and I also know of an old gentleman who caught over a hundred in boxes in this part of the section.

Whittier, Cal.

H. D. H.

A Few More Instances of Chickens Eating Live Worker Bees

We had one chicken about five or six years ago that we found eating bees from our hives more than once, picking them up in a hurry—live bees, too. However, it seems to be a rare occurrence. Tazewell, Tenn. HENRY B. SOUTHERN, JR.

I live in the city, and have bees and chickens together on one lot. I discovered one of my largest Plymouth Rock hens eating live bees off the alighting-board, and I watched her to be sure. Well, she did not eat any more. Lima, Ohio.

MRS. J. A. MOONEY.

I have kept bees for 30 years and chickens for a longer time, but have never kept both in the same yard; but the fowls were liberated each day for a run in the beeyard to eat grass. In 1897 I had a half-grown grade cockerel that would rush to the hives as soon as liberated, and eat live worker bees with as much relish as he would eat corn; but, like Mr. Gray's early riser, he died young, and that is the only case of which I have positive knowledge.

A Dayton friend, who kept both in the same yard, had two first-prize cocks stung to death last year.

The trouble that I would fear would be their eating young queens that are out getting their location before making their mating flight.

Dayton, O. J. W. NICHOLS.

I had two stands of bees in my poultry lot last summer, and they were almost ruined by the poultry. The chickens would stand by the hive and watch the bees, and pick them up as fast as they appeared. They were watching for bees all the time. Finally I separated the bees from the chickens; then the bees soon became strong. This year I have increased my apiary from 2 to 8 colonies. The poultry-yard is about 4 ft. to the rear of the bees; and I noticed yesterday, as soon as a bee crossed the poultry-yard the chickens were right after it. I saw them catch half a dozen or more. I think the reason for the hens eating the bees is this: Where poultry have but a small yard they are not able to get many insects, and unless you feed them plenty of meat they begin to catch drones, eat the head of crippled bees, and finally they develop an appetite for bees, the same as a man does for tobacco. After I penned the poultry from the bees they would just stand up close to the fence and watch the bees. You may think I am exaggerating; but I shall be pleased to prove it to any one who will take the trouble to call on me. I am satisfied that, if you will pen 40 or 50 chickens in a small lot with two stands of bees, the chickens will eventually ruin them.

Columbus, O., Sept. 14. S. S. SNYDER.

For a dozen years I have had bees and chickens occupying the same territory in an apple orchard. Two years ago in the spring, during fruit bloom, I noticed a Wyandot hen busy at the entrance of a hive picking up, killing, and then swallowing bees. When I would scare her from one hive she would go to another, and kept on eating bees until she had her fill. The next day she was at it again, when I caught her and sent her to market.

A few days later I found another one doing the same thing; then I began to take notice. I found the combs crowded with brood. We were having some real chilly nights. Each morning the bees would bring out some chilled brood that was white and tender and drop some of it around the entrances. This made a sweet morsel for the hen. She soon learned where to find it; and while looking for this, bees loaded with pollen would alight right there where she was picking up "grub," and she turned her attention to them. By close and persistent watching I found that the chickens ate no bees except those loaded with pollen. Except this one time, chickens have never bothered my bees.

"LOSING" LAYING WORKERS.

I had a very bad case of laying workers a few weeks ago. When I discovered it some of the combs were nearly full of capped drone brood, and there were hundreds of little insignificant drones

in the hive. Many cells had half a dozen or more eggs in them. After failing to introduce a queen, and having some queen-cells torn down, the following plan succeeded admirably: I took out one comb and placed it in an empty hive. I then shook off every bee into this hive, and placed the combs back in the old hive after shaving off the heads of the unhatched drones. Then I placed the hive with the bees about 40 feet away, and left it until next morning. By this time most of the bees had returned to the old stand. I shook off the remaining bees, closed that hive, and returned the one comb to its original place, and introduced a queen by the usual candy route, which was readily accepted. The layers and most of the drones failed to find their way back, while the workers all came back home.

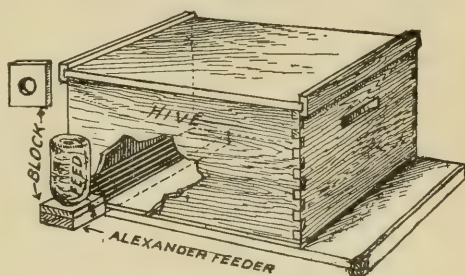
Liberty, Tenn., Aug. 28.

W. P. BANKS.

The One-hole Feeder Applied to the Alexander Feeder

The drawing shows my method of stimulative feeding with a one-hole feeder. Should I care to feed for drawing out comb, or perhaps making up for a shortage of stores in the fall, I remove the one-hole feeder, putting on the regular block, and use the feeder in the regular way.

The first day I use the one-hole feeder I pour some syrup in the Alexander feeder, and then put



on the one-hole feeder at once. Of course, I move the piece of screen and also the cleat, which is nailed near the end.

This feeder is an improvement over either the Boardman or pepper-can feeder in more ways than one. It works perfectly, and prevents robbing entirely. I feed $\frac{1}{2}$ pint daily (two parts water and one part sugar).

St. Louis, Mo., May 6. HARRISON FISBECH.

[An arrangement of this kind can be used where it is desired to practice slow feeding with the Alexander feeder. If one has already attached to his hives such feeders, or the Boardman, one or two holes can be used in connection very nicely. In our own practice we prefer the regular entrance Boardman feeder, and have little or no trouble from robbing, particularly when the bees are not allowed to take the feed any faster than they can take it from one or two holes.—Ed.]

The Way I Make a Success with Bees

Since Walter S. Powder has opened the subject along the line of beekeeping that I have practiced, page 378, June 15, it has encouraged me to tell how I have made a little money out of a few bees I keep. It is all right to talk about keeping bees for the pleasure there is in it; but how many of us can afford to do so when we have a family to support? We all love a little recreation; but how nicer it is when we get some returns from it too!

In the first place, I get my bees to the swarming point about the time the honey-flow begins, then I proceed as follows. I take an empty hive body with inch starters; select two frames with brood in all stages, making sure that I do not have the queen on either one; place the queen-excluding board on the hive, then put the empty body on top with the two combs of brood in it and one frame with an inch starter between. By this change the bees get into the upper story immediately; and as the two frames are spread apart the bees will cluster between them and begin comb-building at once. In a few days I spread the

brood again, putting another frame with an inch starter between. I find that I can produce much more honey this way, as the more the bees are divided the less comb they can build. This gives them the entire hive body to cluster in, and prevents swarming to a great extent.

The honey is just as good as that which is secured in sections, and so far as the disposing of it is concerned I find it easier than selling section honey. For instance, I cut out about two and a half pounds, put it in a bucket, and then pour over it enough extracted honey to make five pounds.

When I ask a customer if she wants some honey she may say that she gets it from the grocer on the corner. I always insist, however, that she get a spoon and taste the honey. It does taste "just like that we used to get on the farm years ago," and she takes a bucket. I can dispose of all the honey I produce, and much more; and the joke of it all is that I get 25 cents a pound while my neighbors get only 20 cents for their section honey.

I will admit that this plan will not work where one has no home market; but I can see no place in the central part of the United States where one can not build up a home trade for all he can produce. Sometimes a beekeeper thinks it necessary to ship his honey away to a large market, when, if he would only try, he could dispose of it all at home.

Indianapolis, Ind.

E. S. HUDSON.

The Advantage of Blending Different Kinds of Honey for Market

I find that properly blended honey gives much better satisfaction than most kinds alone. Even our very fine sourwood honey gets more body by blending with honey from winter huckleberry, or with that from cotton or coreopsis, either of which is nearly as clear as water. The two latter do not have quite enough of the distinctive honey flavor. Our early honeys here in Northwest Georgia are nearly all dark and strong, with the distinctive honey flavor; but that from persimmon bloom, and from the hickory honey-dew, are of a dead sweet. Blending properly brings them right.

We have also a bitter honey from the bitter oak. This is thick and rich, and blends well with a thin honey, and some strong kind, using about one-fourth of the bitter honey. Poplar is given more honey flavor by a mixture of other kinds.

I find that many people when tasting honey expect the flavor that the honey had that they used to get out of grandfather's gums; and if they don't they think that it is manufactured honey. If they can get a little of the old taste they are satisfied. Many do not know that there are as many kinds of honey as there are kinds of flowers and sources of honey-dew that it comes from. The kind that they know is the kind that is produced in their locality at a certain time, and taken out at the only time that grandfather used to "rob" his beegums.

For my own use I like to keep a few kinds as nearly pure as practicable; but I find that, for the market, it pays to blend almost any kind with something else. I have lately been selling honey for the principal honey dealer of Chattanooga, and he was quick to see the advantages of my blending.

Kensington, Ga., July 22. C. W. LUDLOW.

Scored Cylinder of Gasoline-engine

After standing for some time idle in a warm place I started my gasoline-engine without cleaning the cylinder. The piston and cylinder cut on the under side, but not so as to cause a leak. What shall I do to stop this cutting? SUBSCRIBER.

[Your trouble must be due to a poor grade of cylinder oil. If you use a good oil the piston should not cut the cylinder, no matter how long you leave it in a warm place without cleaning it. Of course, if it were left a year or more in a damp place, and the cylinder had not been thoroughly oiled at the time it was laid away, rusting might set in so that you would have to take the piston out and thoroughly clean it and the cylinder with kerosene, then supply plenty of lubrication when you put it back. Be sure not to use any thing but the highest grade of gas-engine cylinder oil. Do not use steam-cylinder oil. If your piston keeps on cutting, there may be some foreign matter, such

as dust or grit, in the cylinder, or your lubricating oil may not be good. Possibly the wrist-pin has worked loose, and is scoring the cylinder.—ED.]

Outside Cases for One and Two Hives

As my bees have not wintered well in my basement, which is too warm, I thought to try it outdoors; so I have made the following arrangements, and I should like to hear through the columns of GLEANINGS what yourself and some of those who have wintered outdoors think of my chances of wintering the way I am going to. I have made the case of lap siding, four boards in height, and large enough to hold four inches of planer shavings on each side, and three inches on the front, with about six or eight inches on top; then I have made a cap of inch lumber and covered it with two-ply roofing. This telescope over the case two inches. I have made 40 cases to hold one hive each, and 50 to hold two hives each. For the entrance I have entrance blocks out of 1x3 by cutting out a piece $\frac{3}{4}$ x5 on the flat side of the 1x3, the same to lie down on the entrance on the flat side. My bee-yard is well protected from all cold winds. I have a nice beecellar under the residence, but it is too warm. I have a hot-water plant in the basement, and the beecellar is partitioned off with stone from the rest; but there are two sets of radiator pipes that go through the wall into the beecellar. I have had a window under the porch wide open all winter, but could not keep it cool enough. I am going to try 25 colonies in the basement, and the rest outdoors.

Mora, Minn., Sept. 4.

C. H. HARLAN.

[It will doubtless depend a good deal upon the winter as to whether your colonies will do best outside or in the cellar, although if you have trouble in keeping the temperature of your cellar low enough we presume the colonies would winter out of doors better.]

You have gone to considerable expense, probably, in making these cases. You could have saved somewhat by making your cases to hold four colonies, and also conserved the heat by so doing. When outside cases are built in this fashion it is customary to put in four colonies rather than two or only one.—ED.]

Full Sheets of Foundation in Sections no Longer Wanted

For some time I have been experimenting with starters in sections; and instead of full sheets or short starters at top and bottom I have found that a certain shape of top starter with a bottom starter (*a la* Miller), and side starters similar to bottom ones, have given the best results.

In over 500 sections, not one comb was fastened in the least to the fence, as is so often the case with full sheets. I never used a split section. I have one section with every cell except three filled and capped all around next to the wood, and only one pop-hole in it, and this was when there was plenty of room above for storage. I am done with full sheets.

Springfield, O.

J. WARREN ARTHUR.

A Way to Catch Skunks without Endangering Other Animals

A few years ago my attention was attracted by the ground being smooth in front of a few of my hives; and after looking closely I satisfied myself that it was a skunk's work, by an occasional track in the fresh dirt. The next thing was to find how I could catch him and not catch my neighbor's cat or dog. Well, I took a small barrel, drove a nail on each side near the center, and hung it by the nails resting in notches in two stakes in the ground. Then I dug out the ground between the stakes, so the barrel could swing down in an upright position. I tipped the barrel over endwise, and put some old scraps of meat or honey in the back end.

When the skunk walks into the barrel it will tip up, and he can not get out. In the morning the barrel can be carried away and tipped down. The skunk will walk out slowly, and you can shoot him or drown him. Skunks will make no smell in the barrel unless molested. I have caught several in this way.

Campbell, N. Y.

F. D. LOOK.

Our Homes

A. I. ROOT

Grieve not the Holy Spirit of God, whereby ye are sealed unto the day of redemption.—Eph. 4:30.

There is a way which seemeth right unto a man; but the end thereof are the ways of death.—Prov. 14:12.

Strait is the gate, and narrow is the way, which leadeth unto life; and few there be which find it.—Matt. 7:14.

About thirty years ago we planned and built a commodious two-story brick house; and this comparatively good-sized brick house was all needed for Mrs. Root and myself and the five children. But one by one the children were married, and now all have homes of their own; and therefore the responsibility devolved on Mrs. Root to look after and care for that domicile with its many rooms upstairs and downstairs. We could not well rent a part of it to somebody else, because it was not planned nor built with that end in view; and when people get to be past threescore and ten they usually get to be a little tenacious about their own ways, and places of leaving things. We have always devoutly believed in having "a place for every thing, and having every thing in its place;" and this is easily managed when there is nobody else on the premises to misplace and disturb the order of things. Myself and the children have suggested to Mrs. Root to lock up the rooms she does not need, and thus make our home a small one; but the good woman declares she can not do that—that is, so long as she occupies the premises and is responsible, there must be a regular house-cleaning every spring and fall, from cellar to garret, and then from garret to cellar; and I guess she is not far from right. This periodical house-cleaning brings to light things misplaced or forgotten, and enables us to hand over the things we no longer need to some of the good neighbors as well as relatives who would be very glad of them. And while I think of it, let me urge elderly people like ourselves to look over their effects; and as they come across these things they no longer need, distribute them among the younger friends who *do* need them—children's toys, for instance. What is the use of preserving them after the children are grown up and gone? If the grandchildren have more modern playthings, make the children of poor families happy by presenting them the out-of-date relics of childhood. Get rid of stuff stowed away, without waiting until you are dead and gone.

Well, Mrs. Root talked much about a little home that she could easily look after, such as we are just now planning. She

thinks a modern bungalow would suit her best, because she is tired of climbing up and down stairs, which she has done thousands and thousands of times during her life. Just think of a little home with every thing on one floor, with a little kitchen just large enough, and no more; likewise a dining-room and pantry, and a bedroom not far away, with modern bathroom, closets, etc., making it easy to take the daily sponge bath I have talked so much about.

In our town at present we have gas for fuel that is even cheaper than wood or coal, to say nothing of leaving no ashes, heavy wood to bring in, kindlings, etc. Of course we want an open fireplace; but this is also easily managed by the modern gas people. We have our own electric plant, so there is no more fussing with lamps and chimneys. We want a good up-to-date cistern, and want it well down in the ground so as to keep the water cool. Perhaps you will catch on to the idea that Mrs. Root is planning to do her own work, without the assistance of a hired girl (or anybody else) as long as possible. I do not mean to be disrespectful to the *good* girls and women who help others in their homes; but we all recognize, or should do so, that elderly people have their own ways and habits, and therefore, if I mistake not, they are usually happier to have a great part of the day to themselves. But please do not understand that Mrs. Root is ever annoyed by the good children and almost a dozen grandchildren who trip in and out at almost all hours of the day. The grandchildren especially are the delight and joy of her life.

Now, I am thus going into details because there are many elderly people who are reading these Home papers; and I frequently get letters of late from those who have followed me in *Our Homes* for almost forty years. By the way, when the Holy Spirit called me to open this department in our journal, and to head it "*Our Homes*," I can not recall just *why* I chose that title. At any rate, it is quite fitting that I should take up the matter, in this department of a "home" built of wood and brick and cement. We want the roof of this bungalow made of slate in order that we may have the purest and best drinking water. As we are now using gas instead of coal in our factory, there will be less smoke to settle on the roof and spoil the rain water. I have several times discussed

sanitary cisterns in times past, and I may take it up again before I get through "building our bungalow."

You may wonder what all the above has to do with the three texts I have chosen. Well, we are just getting around to it. In planning our new little home we decided, or at least *I* did, that we wanted it very near to the five homes where our children have *their* homes near each other. The most available site was where a tenement house has stood for something over twenty years. This house was built on the old-fashioned plan of having it close up to the street. Were it not for this, Mrs. Root thought that the old house fixed over would do very well, say during the remainder of our lives. But the young folks all put in a big protest. First, they would not consent that their father and mother should live in any such "domicil," even when fixed over; secondly, they are planning a nice street, and this one little house would spoil the effect of all the other houses on that street, and so the house in question would have to be moved back or moved away entirely. The three other dwellings already on this street are all back a uniform distance, with nice green lawns in front, and therefore this house *must* be moved back. I said if it were to be moved back it should be moved further away, and have our bungalow take its place, located back on a line with the three other homes. Now, let me digress a little right here.

The past month or six weeks have been one of the *happiest* periods of my life; and as I have said several times before, this was because it was one of the *busiest* times of my life. In planning for the bungalow there were errands innumerable back and forth from the factory to the new building. With my little electric automobile which I have before mentioned, I can get around almost anywhere, and go with the speed of the wind, or even faster, when I am in a hurry. It will go backward or forward, turn about in a narrow space, and, with the practice I have had with it, it seems almost like bringing to pass the dreams pictured in that old book the *Arabian Nights*. Mrs. Root tells all the children to call on me any time, for nothing makes me happier than running on errands with the little auto. With it I can bring quite a little load of cement, doors, windows, small bundles of lumber, etc.

Well, another thing that has made me particularly happy is the presence of the Holy Spirit; and my constant prayer, both night and day, has been, to use the language of that beautiful text, "Grieve not

the Holy Spirit." I wonder how many of the world know what a precious thing it is to feel the *presence* of that Holy Spirit every day of their lives; or, in other words, to feel, even through the busy rush of business, the words, "Well done, thou good and faithful servant." In an establishment like ours, where there are usually two hundred hands or more employed, a lot of them outdoors as well as indoors, there are frequent misunderstandings. Somebody's feelings have been hurt by foolish gossip. Another one has been reprov'd when he was not at fault. Somebody has not had his wages advanced when they ought to have been; and somebody occasionally, on the other hand, idles away his time instead of attending to his own proper task. Well, when I am feeling real well, as I do now, it is a pleasure to me to listen to their particular trials and to help right little wrongs. When I can get some one to take up his task with renewed courage, say with a *glad* heart instead of a *sad* one, then I feel that voice of the Holy Spirit.

Now, the above would look as if I must be a "pretty good old man," would it not? But I want to quote from my father's favorite text once more: "He knoweth our frame that we are but dust." Notwithstanding what I have been telling you, every little while I am obliged to remember that I *am* but dust after all; and not only that, but at times I am *exceedingly* "dusty."

After the matter had been thrashed over, and Mrs. Root and I had consented to move the house away and not spoil the street, and after the ground had been carefully staked off where the house should be located, so as to be ready to begin on the cellar, some of the younger ones wanted it *further* away; and after we had spent considerable time in surveying and placing the stakes, we pulled them up and set them again; and three good stout men commenced digging out the cellar. After about an hour's work, however, the young folks *again* wanted the location changed. I objected to so much waste of time and labor. One of the boys said, "Why, father, how much does throwing out fifty cents' worth of dirt, and putting it back again, amount to compared with the future appearance of the street?"

Reluctantly I told the men to stop work. Then three of my sons-in-law, with their tapelines and stakes, commenced planning and surveying. I grumbled about having the men stand still, for it always vexes me to have a gang of men, right in the middle

of a nice day, wait for somebody to give orders.

By the way, it just now occurs to me that I want to tell a little story right along in this line. My department has not had much to say about bee culture of late; but this is a *bee* story. You listen and see if you do not agree that it is a "bee story!" Our factory usually shuts down on Saturday afternoons. We have four good stout horses, but they are during the week so busy with the factory work that it upsets them to stop work. Well, I had planned to have some grading done on one particular Saturday afternoon. Four horses and six big stout men were on hand to do the job. Before any thing could be done, a few furrows had to be plowed, and I was hurrying to get the plow started. But a ring in the doubletree broke before the plow team had hardly made a start. I rushed off with my automobile, grabbed a ring out of the toolhouse, and got them started. Then somebody wanted to talk with the driver. Meanwhile the four horses and six men were standing idle, and I was very anxious to get the job done before night. While I was busy on some other errand with my auto, something happened *again*. Two teams and six men were still loafing. I rushed up and inquired, "Why, what is the matter *now*?"

"Yellowjackets," was the reply.

Then they pointed to a pile of deep grass where a big nest was turned out with about a bushel (?) of jackets on the ground and in the air. Some of them laughed, thinking they had got A. I. Root "up a stump" *sure*. I considered the dilemma for about fifteen seconds. Then I stooped down and put my pants inside of my stockings. I had on light low shoes, for it was a warm day. I did not wait for a veil or for a smoker, for I was impatient with the delays we had already endured. I just "waded in." There were some cheers as I stamped those yellowjackets into the soft dirt and piled sods over the nest,* tramp-

* Here is a point you will bear in mind: If you wish to destroy a nest of bumble-bees, hornets, or yellowjackets, break up their home as speedily as possible, and get every particle of the comb containing larvae out of sight and covered up. These insects fight for their children and their young just exactly as a sitting hen fights for her chicks. In fact, a swarm of bees that has got to stinging every thing everywhere may be quieted almost at once by moving their hives away—putting them in the cellar, for instance. They fight to defend their home. When their home is gone or obliterated they have nothing to fight for. They are lost and demoralized; therefore when you are fighting insects get every trace of their loved ones, especially their babies, out of sight as soon as possible. These yellowjackets would gather in great numbers about the smallest scrap of their nest left uncovered; then I got plenty of soft dirt and piled it over every vestige of their domicile, and tramped it down. After this

ing them down and killing the furious insects in the air as fast as I could. I did not get stung at all on my hands or face; but there was a little bit of "zone" where my pants did not reach quite to my shoe-top. The hissing jackets, crazy with rage, discovered this narrow break in my "armor," and planted stings by the dozens or may be hundreds wherever they could reach through my thin stockings and enable their stings to "catch on." I had not been stung enough of late years to be as thoroughly immune to bee-poison as I used to be, and my ankles swelled a little; but they troubled me later on, more by burning and itching rather than by the swelling. In ten minutes the team was started, the men were at work, and the grading was finished before night. The above illustrates why I get impatient when work is "blocked." I will now go on with my story. I dread telling the rest of it; in fact, I have been putting it off as long as I could by talking about something else. Well, here goes:

Three bright young men, clean men in the prime of life, were busy, as I have told you, with tapelines, chalklines, hatchet, and stakes. I pleaded and begged with them to let me go on with my work in my own way. I think, in fact, I told Mrs. Root that very morning I would give a *hundred dollars* if I could have my own way that forenoon instead of being obliged to give up to the ideas of somebody else. I *finally* decided I could not wait any longer, and I tried, pleasantly, to tell my good friends they would have to excuse me if I declined to adopt any more changes. I shall not soon forget the pained look that came into their bright faces as they dropped every thing and went away looking sad and sober. I told the workmen they might go on with their digging, and went over home and said to Mrs. Root, "Sue, for the first time in my life I have been rude with my three sons-in-law."

The words were hardly out of my mouth before Blue Eyes and her good husband came in at the open door laughing. I rather think they overheard my remark; for they both replied in almost the same breath, "Why, no; you have not, father. We will give way, of course; but we are sure you will regret it when you come to think it over more."

The Christian spirit they showed rebuked me again. But I was so sure I was right that I decided to let the men go ahead digging.

all fight was taken out of them, and they were soon scattered and gone.

Here comes in the second one of my texts. For fully two hours Satan kept persuading me I had done exactly the *right* thing by "setting my foot down." We very soon had a board meeting on some other matters, and toward the close of it the matter of the cellar came up again; but I said I preferred not to have any changes made. Meanwhile one of my sons-in-law was making a map of the street; but I was still too headstrong to look at it. It was time for my daily nap just before dinner. Oh, what a boon these refreshing naps are to me just before noon, and again just before sunset! This beautiful little electric automobile, in order to do its work well, and get up speed at the word of command, must have its *storage battery* "charged" at least once or twice every day. If this is neglected, instead of going like the wind, it just "crawls" at a snail's pace. Well, my splendid health is in like manner kept up by these daily naps. I started to go over to the house to lie down, and then discovered it would be of no use. *The Holy Spirit had deserted me.* I had "grieved it away" by being rude to these kind friends of mine. Just as I was crossing the street Ernest (he is not only Ernest in name, but "earnest" in spirit and has always been so) came along and said, "Why, father, they say you have started those men *digging* again. Arthur has made a nice plan of the whole street. You surely will come over and *look* at it, will you not?"

At first I started to tell him I did not wish to look at it, and that I did not want any more changes. But there was no resisting the honest enthusiasm he showed in having me get *exactly right* before I "went ahead." I went over and looked at the drawings. I saw the point the boys were making, clearer than ever before, and then I went back to where the three men had been throwing out dirt; and it seemed to me they had thrown out an *astonishing* lot of it, in just two or three hours. I confess it *was* humiliating to stop them once more, and tell them that, when we got time, the dirt would all have to be put back where it came from. But it was the *only* way—the only road out of the trouble; and that road is described in our concluding text—"Strait is the gate and narrow is the way that leadeth unto life."

You doubtless have heard it said that relations can never agree. Think of the wicked and foolish jokes that have been said about "mothers-in-law"! Now, if you wish to have the "peace of God" constantly with you—that peace which "passeth

all understanding"—let me beg of you to avoid family quarrels; and especially make it the rule of your life to be kind and gentle in all your dealings with the man or woman who married your daughter or your son. *Whatever* you do, avoid difficulties and disagreements of *this* kind.

Let me go over briefly a little story I have told several times before. At one of the York State conventions they were discussing the matter of bees troubling the neighbors. One man got up and said a very rich man moved into his neighborhood, and commenced to put in some extensive improvements. Very soon he decided that the large apiary belonging to the speaker was a nuisance to the neighborhood, and would have to be moved away. Litigation was started, and there was going to be expensive warfare on both sides. The speaker hesitated right here, and when somebody asked him how it came out he replied, "It did not come out. This man had a daughter and I had a son; and while we were planning for a big lawsuit those two 'fool kids' took it into their heads to 'fall in love' with each other. We two fathers stormed and remonstrated; but that only made matters worse. Nothing would pacify the youngsters until we two shook hands across the 'bloody chasm' and dropped all litigation. He finally decided the bees did not make any bother worth mentioning, and I for my part found out that he was a real nice and neighborly man when I came to get really well acquainted with him."

Now, then, friends, one of the morals of my story to-day is that the ties of relationship should be held most sacred.* Let me use the beautiful text I quoted in closing my Home papers in the previous issue:

Let there be no strife between me and thee,
... for we be brethren.

* The place in the land where those men worked so hard on that hot summer day in digging out the cellar has been filled up, and we have tried to put the dirt back where it came from; but in spite of all we can do, the traces remain to disfigure more or less the green landscape; and in a like manner the memory of giving way to an impatient impulse remains. Not only my three relatives but the three men who were digging, and some others who stood around, got a glimpse of A. I. Root that did not exactly accord with his teachings and admonitions on these pages. As I look back I feel as if I would give a big lot if that little incident had never happened, or if I could *forget* it ever happened.

A KIND WORD BRIEFLY EXPRESSED.

If A. I. Root is alive, thank him for his kindly treatment of me 22 years ago.

Seattle, Wash., Aug. 14.

R. Z. FAHS.

[Many thanks, my good friend; and although I can not recall any thing about what you refer to, I am glad to think that I was enabled to lend a helping hand to some child of humanity 22 years ago.]

Temperance

OUR FRIEND DOOLITTLE TURNS THE LIME-LIGHT ON TO ONE PHASE OF THE LIQUOR-TRAFFIC.

Mr. A. I. Root:—When I read the enclosed, clipped from the Aug. 15th issue of *GLEANINGS*, I was amazed at your putting the matter up to Woodrow Wilson. You know he can not come out for the annihilation of the liquor traffic any more than can Taft or Roosevelt without having his political head cut off. How can he, and yet remain at the head of a political party which, if it comes into power, becomes a part of the United States government, which now takes \$1.10 tax on every gallon of whisky, and \$1.00 on every barrel of beer made? Now, if, when the government received the taxes on these gallons and barrels, none were sold, that would be the end of the revenue accruing; so in order that it may be sold, the government persuades men to sell it, by making it a *lawful business* by way of a license for which the sellers again give a revenue by paying \$25.00 for the same. Now don't you see that, for the sake of this revenue by way of tax and license, the party in power is pushing the sale of liquor as fast and as hard as it can? And after the seller has paid this tax and license, he in turn pushes the matter so that he can get a profit therefrom, and thus the boys of our country are brought to ruin. Therefore the only way this accursed thing can be stopped is to start at the source. I am sending you "Government by Administration," which I wish you to read carefully as doing me a favor. Then I am daily asking God to give you the light and the needed grace to swing your department in *GLEANINGS* over as an "upheld banner" for prohibition, where it ought to have been long ago. And may God bless you through the remaining days of this life, and give you "an abundant entrance" into eternal life which comes to you and me through belief in his dear Son.

Borodino, N. Y., Sept. 2. G. M. DOOLITTLE.

Many thanks, old friend, for having given me still another glimpse of the iniquity of the liquor-traffic, especially regarding the licensing of it. I am certainly, heart and soul, and always have been, in favor of Statewide prohibition, and, in fact, for any thing that makes the saloon-keepers squeal and shake in their shoes. Inasmuch as there may be some readers of *GLEANINGS* who have never seen the Prohibition platform, I submit it below; and I submit, also, to every man, woman, and child who looks it over, if it is not the best and wisest platform before our country or before the world.

THE PROHIBITION PLATFORM.

The Prohibition party in national convention at Atlantic City, New Jersey, July 10, 1912, recognizing God as the source of all governmental authority, makes the following declarations of principles and policies:

1. The alcoholic drink traffic is wrong; is the most serious drain on the wealth and resources of the nation; is detrimental to the general welfare and destructive of the inalienable rights of life, liberty, and the pursuit of happiness. All laws taxing or licensing a traffic which produces crime, poverty, and political corruption, and spreads disease and death, should be repealed. To destroy such a traffic there must be elected to power a political party which will administer the government from the standpoint that the alcoholic-drink traffic is a crime and not a business, and we pledge that the manufacture, importation, exportation, transportation, and sale of alcoholic beverages shall be prohibited.

We favor:

2. Suffrage for women on the same terms as for men.

3. A uniform marriage and divorce law; the ex-

termination of polygamy, and the complete suppression of the traffic in girls.

4. Absolute protection of the rights of labor, without impairment of the rights of capital.

5. The settlement of all international disputes by arbitration.

6. The abolition of child labor in mines, workshops, and factories, with the rigid enforcement of the laws now flagrantly violated.

7. The election of United States Senators by direct vote of the people.

8. Presidential term of six years, and one term only.

9. Court review of postoffice and other departmental decisions and orders; the extension of the postal savings bank system and of rural delivery, and the establishment of an efficient parcels post.

10. The initiative, referendum, and recall.

11. As the tariff is a commercial question, it should be fixed on the scientific basis of accurate knowledge, secured by means of a permanent omnipartisan tariff commission with ample powers.

12. Equitable graduated income and inheritance taxes.

13. Conservation of our forest and mineral reserves, and the reclamation of waste lands. All mineral and timber lands and water powers now owned by the government should be held perpetually, and leased for revenue purposes.

14. Clearly defined laws for the regulation and control of corporations transacting an interstate business.

15. Efficiency and economy in governmental administration.

16. The protection of one day in seven as a day of rest.

To these fundamental principles the national Prohibition party renews its long allegiance, and on these issues invites the co-operation of all good citizens, to the end that the true object of government may be attained, equal and exact justice for all.

WHISKY AS A MEDICINE; DO OUR UP-TO-DATE PHYSICIANS RECOMMEND AND USE IT AS A RULE?

This matter was brought up by a full-page advertisement in the Boston *Globe* of Sept. 10. The full-page sheet was sent to me with the suggestion, "Here is a text for you." The big advertisement is from the James E. Pepper Distilling Co., of Chicago. In big letters we read, "37,814 high-standing physicians endorse this whisky in health or sickness." Toward a hundred brief letters from as many physicians scattered all over the nation are printed in this sheet. These doctors declare they have used(?) or tested the whisky in question, and pronounce it good, and that they also continue to use it in their practice. Now, we very strongly question the statement that these letters are from "high-standing physicians." They are mostly drinkingmen certainly, for they say so. Let us now look into the matter squarely. The railroad companies of our land have decided to have nothing to do with men who use intoxicants. Is it too much to ask that the *physicians* of our land, our family doctors, step up on to the same high plane of total abstinence in their habits, and, as far as possible, in their practice? Suppose the good people of our land should stand up and

declare that they will no longer employ a physician who is not a teetotaler.

But the above, to my mind, only indicates the *desperate* fight the brewers and distillers are making to hold their trade. It is not to be wondered that in the whole United States they have been able to find well toward 40,000 doctors who might accept a gift of some choice whisky, and give three or four lines of testimonial in return. Drowning men, you know, catch at straws.

This reminds me that, during the coming week, the brewers of the United States will hold a great conference in Cleveland, O.; and, saddest of all, the city mayor, Mr. Baker, has consented to give them an address of "welcome" to the chief city of Ohio. Shall we not follow the railroad companies again, and declare that we will never vote for a mayor who consents to give an address of welcome to a conference of brewers?

WOMEN SMOKERS OF CIGARETTES AT THE WHITE HOUSE, WASHINGTON.

It appears that a woman signing herself "Mrs. Wilson Woodrow" has been publicly defending women's rights to smoke cigarettes; and I do not know but I agree with her when she says that a woman has as good a right to smoke cigarettes as men, and I would add, just as good a right to *vote* as men have. Well, this woman's name, "Mrs. Wilson Woodrow," has been confusing the public, as well it might, with the name of Mrs. Woodrow Wilson, the wife of the presidential candidate; and because of this, Mrs. Wilson, for the first time in her life, has come out in a public statement. See the following, which we clip from the *Baltimore Sun* of August 13:

What Mrs. Wilson wished to have fully understood was that, if she becomes the first lady of the land, she will not, as has been said in a widely distributed interview, have packages of cigarettes in her personal desk at the White House, and smoke them with her callers.

Mrs. Wilson was represented as saying that she thought a woman has as much right to a cigarette as a man; that the existing prejudice against woman smoking is to the last silly and absurd; that smoking cigarettes is a question of manners, not morals; that it promotes good fellowship; that some women feel that a cigarette calms their nerves and helps their brains into working order, and that she enjoyed a cigarette as she enjoyed after-dinner coffee.

It seems from the above (in all a rather lengthy article) that the editor of the *Ohio State Journal* wrote Mrs. Wilson a letter, protesting emphatically, and below is her reply:

Dear Sir:—I have just received a copy of the *Journal* with your editorial entitled "Smoking Women," and I beg leave to deny indignantly the statement that I approve of women smoking cigarettes. The interview upon which your editorial

was based is a pure invention. I intensely dislike the cigarette-smoking habit for women; in fact, so strong is my feeling on the subject that my real danger lies in being unjust and unkind in my judgment of those who differ with me in this respect.

But certainly no woman in our household ever has or ever will smoke. Quite apart from the bad taste of it, I believe with you that it has an extremely injurious effect on the nerves.

ELLEN A. WILSON.
(Mrs. Woodrow Wilson.)

Governor Wilson has also given his indorsement of her letter.

Before dropping this matter let us consider for a minute what was implied in Mrs. Wilson's letter. If it were indeed true that women folks at the White House, or at least *some* of them, have been in the habit of keeping packages of cigarettes in plain sight at the White House, and smoking them with their callers, would it not be about time that we should expect the finger of the Almighty to write on the wall, "Thou art weighed in the balance and found wanting"?

Perhaps it is no more than proper to allude to what has been reported in one way and another. See the following:

TABACCO ABSTINENCE.

The columns of Our Homes department several times have boasted that Mr. Theodore Roosevelt does not use tobacco; but has the editor noticed how often our daily press contains items wherein it is related that Mrs. Alice Roosevelt Longworth, in an extremely brazen manner, parades to the public the fact that she smokes, and is particularly fond of the cigarette? One might answer this with the argument that the father should not suffer for the daughter's wrong, and under some circumstances he should not. I am, however, enclosing a short clipping, "The Campaign Cigarette," and can not refrain from adding that, from what I can learn of Mr. Roosevelt, he is the "boss," and I do not think that his lieutenants would issue such an article against his wishes.

Lake Roland, Md., July 26.

The clipping referred to above (also from the *Baltimore Sun*) states that Roosevelt's picture is on the packages of "campaign" cigarettes. The question is, does Ex-president Roosevelt know this? and does such a course have his sanction?

THE EARLY JOE APPLE IN NEW ZEALAND.

Regarding the Early Joe apple, Messrs. Thos. Horton, Ltd., nurserymen, of Hastings, N. Z., have the above name in their catalog. Their description is: "Fine little dessert apple; yellow, with red stripes; ripe January [say July with you]; tree a good cropper, and blight proof." Price 25 to 60 cts. each; \$2.50 to \$7.50 per doz., etc. I will try to find room for one sample, in view of its praise in *GLEANINGS*, July 1st, and other issues.

C. R. BELL.

Otaki Railway, New Zealand, Aug. 3.

GOOD READING-MATTER FOR THE HOME, ETC.

My husband and son, G. W. Hammond, who is a subscriber to *GLEANINGS*, are both in the bee business. Both are members of the Baptist Church and I wish to thank you very much for the pure reading-matter you are sending into my home every month, especially the issue of Aug. 15. We are for prohibition. May you prosper.

MRS. E. M. HAMMOND.

Burrage, Mass., Aug. 19.

Gleanings in Bee Culture

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Editorial

DURING this month a good many colonies will have to be united. Many have complained that bees go back to their old stand; but if the work is done rightly there will be no returning. Wait until the first four or five days of cool weather, then early in the morning do the uniting, removing the hives from the old stands entirely.

STINGLESS BEES (?) ETC.

THE clipping below seems to have been having the run of the daily papers. We clip it from the *Detroit News* of Oct. 1:

The stingless bee has at last arrived, having been produced by an English apiarist named Burrows after two years of experiment. A description of the new bee, which has been received here, says that the hybrids are splendid workers, and are less liable to disease than the ordinary honey-producer. Burrows mated Cyprian drones with Italian queens to produce the new bee, which, while possessing a stinger, can not use it as a weapon of offense.

Something like twenty years ago, when D. A. Jones brought the first Cyprian bees from Cyprus, the same or a similar claim was made, and there was just a grain of truth in it. The Cyprians, or a cross such as mentioned, seemed quite slow about getting on the "war-path;" but it soon transpired that, when once roused up, say by untimely meddling, they stung worse than any other bees we had. So much for newspaper canards.—A. I. R.

HONEY-MARKET CONDITIONS; CORNERING THE MARKET.

AT the present time there seems to be an effort on the part of some one to corral the crop of western honey. Small buyers are complaining that they are unable to supply their needs. While this will have the effect of boosting prices of both comb and extracted, the people who are doing the cornering should not make the mistake of holding on too long nor boosting the prices too high. Now is the time to sell honey—especially that in the comb. When cold weather comes on, the prospective buyer is confronted with the hazard of granulated comb honey. He will be shy about

placing his order, and the result will be that some one will be left with a lot of comb honey on his hands that he can't sell.

SHIPPING BEES IN 1, 2, AND 3 LB. PACKAGES WITHOUT COMB.

IT is usually very difficult to send bees without combs in extremely hot weather any distance. While we have had splendid success in making such shipments all over the country when the weather was suitable, we have had difficulty when it turned extremely warm, especially with the larger packages of bees. Lately we have been providing bottles of water; and in every case where the water was given, the bees went through in good order. In some cases not a single bee was reported dead, notwithstanding the weather was very warm when the bees were *en route*. Experience has shown that bees in high temperatures require water. Without the means of getting it they will die in a few hours. This explains why nuclei and colonies on combs will go through in good order, because the water in the honey would seem to carry them through. On the other hand, without combs, and only bee candy, under similar conditions, they will go through in bad order.

We took some little self-sealing tin cans and filled them with water, and, after screwing the cover down, made a single perforation through the cap about the size of a pin. These were secured in the center of the cages, when, presto! the bees would go through with the loss of scarcely one of their number.

PARCELS POST AT LAST AND ITS EFFECT ON BEE CULTURE.

OUR readers will remember how, during the past three or four years, we have been urging them to write to their Representatives and Senators in Congress, requesting their favorable consideration of the various parcels-post measures that have been submitted from time to time, and how as often they have been put to sleep in committee;

but during the past year the demand for parcels post has been so insistent, and the spirit of the age has been such, that Congress has finally yielded and given us parcels post on the zone system, the same to become effective next January. While it is to be admitted that the general plan proposed is somewhat experimental, yet a movement has been made which, we believe, will result in an effective parcels post.

Congress did not deem it practicable to give us the same kind of parcels post that has worked so satisfactorily in nearly all European countries—a system that allows one in Europe to send a package not exceeding 11 lbs. in weight any distance at a certain definite rate. On account of the immense distances in the United States, our lawmakers seemed to feel that any scheme of parcels post with no distance limit, which would be feasible in a small country, might bring a heavy postal deficit in the United States, and so the zone system as outlined by Dr. Miller on page 648 of this issue was adopted.

We notice that a number of the journals—notably the *Scientific American*, believe that the zone system of charge according to the distance the package is to go “will be the most vexatious and annoying feature of the new plan, and contrary to the general purpose of our postal usage—that is, one rate regardless of distance traveled.” We can not help sharing this feeling. Whether the express companies or other “interests” had any thing to do with opposing a scheme of one rate for all distances we do not know. We see no reason why the United States can not carry parcels-post packages to all parts of the United States at the same rate for all distances, if it can send letters, books, and other matter on the same basis. According to the law of average, the long and short distances would equalize at a point that would warrant a uniform rate, and thus avoid the complicated system of the multiplicity of rates we are to have. However, we are not inclined to criticise, but feel, on the other hand, that every loyal American should unite in giving the new plan a careful and thorough trial—especially as the Postmaster-General has authority to change the classification of mailable articles, weight limits, rates of postage, or the system of zones. If he is a broad-gauge and far-seeing man—one who can not be influenced by the “interests,” well and good. We will assume that he is, and that he will be just that kind of man; therefore we are optimistic concerning the future, and thankful—mightily thankful—that we have

secured as much as we have. Once the people get a chance to try out parcels post they will demand that it be retained.

The effect of parcels post, we believe, will be to reduce the expressage on bees and honey in small lots. Hitherto the rates have been almost prohibitive on packages weighing over 7 lbs.; but as the express companies have done in the past, so they will do in the future—meet rates of postage anywhere and every time. They will be compelled to do so and more. This would mean that we would be able to send bees in the form of pound packages, or nuclei and full colonies, at rates that will be much more equitable and within reason. It is very possible that we may be able to send bees by mail in pound packages; but we question the wisdom of making the attempt, for the reason that some fool (pardon the expression) might send out a package that would let bees loose in the mail car, or in some public place where they would do a great amount of damage. There is no telling what might happen. The Postmaster-General or any of his assistants who have unlimited powers to make rules and regulations might bar bees from the mails entirely.

A STUDY OF THE WORK OF A QUEEN.

OUR cover picture for this issue is from a photograph taken by Dr. E. F. Bigelow, Arcadia, Sound Beach, Ct. Dr. Bigelow's explanation of the work of the particular queen that laid these eggs appears on page 657, together with two other illustrations. Of course, it is understood that a photograph does not reveal the depth of the cell. In a real comb the cell is nearly half an inch deep, so that the eggs are not as easily seen as they are in this picture.

This cover picture in many ways presents an interesting study. It shows that the best of queens, even when there is plenty of room, may lay two eggs in one cell. Right in this connection, however, it may be well to point out that, when there is more than one egg in a cell, the queen may not be responsible. The trouble may be due to a lack of room, in which case the queen literally drops eggs promiscuously about the comb, very often not getting them into the cells at all. At such times the workers pick up these eggs, and it would not be at all strange if they placed them in the cells, for at certain times of the year it is not uncommon to find cells which contain even as many as ten or fifteen eggs. A beginner confronted by these conditions, and having heard something about laying workers, is apt to conclude

that his queen is "no good," or else that laying workers have developed. Unless the queen were actually found, there might be some grounds for supposing this condition to indicate laying workers, for it does not look at all unreasonable to suppose that laying workers may drop their eggs promiscuously, and that the bees themselves pick them up and place them in the cells. Of course, if laying workers have been at work very long, scattered drone brood in worker cells is likely to be the result.

Whenever a queen is crowded for room, it is not uncommon to find an egg and a larva in the same cell, or even two larvæ. If the experiment is tried of grafting two larvæ in a single queen-cell, the bees will feed both of them until it is time for the cell to be capped over, and then one of the larvæ disappears.

Notice that one of the cells shown in the cover picture contains a larva instead of an egg. This cell might have been the first one in which the queen laid, although it is more likely that this egg hatched a little in advance of the other. It is certainly true, as we have pointed out in these columns before, that larvæ from the same queen and of the same age vary greatly in size, and it would not be unreasonable to suppose that certain eggs hatch more quickly than others. Some hens' eggs hatch more quickly than others, and some chicks make a much faster growth; so it is not surprising that the same would be true in case of queens' eggs and larvæ.

But to return to our picture. We should explain that the top of this picture does not represent the top of the comb as it originally hung in the hive. Fig. 2, page 658, shows a small portion of the same comb in the correct position. While there is not absolute uniformity by any means, it is safe to say that a queen while she is laying an egg *usually* has her head toward the upper part of the comb, and that the egg is *generally* attached to one of the upper sides of the base of the cell near the center. If the comb is held vertically, the egg when it is first laid does not lie in a horizontal position, but inclines downward toward the center of the cell somewhat. The second day after the egg is laid, it inclines still more, and the third day it lies almost flat on the base of the cell. It is thus possible to calculate more or less accurately the time when the egg will hatch.

The color of the egg varies quite a little, from nearly pure white to a rich cream. The size also varies considerably when those of different queens are compared. In

fact, the color and size seem to vary fully as much as do the color and size of hens' eggs.

REPORT OF THE BEE INSPECTOR IN COLORADO FOR 1911.

THOSE who are inclined to throw cold water on honest efforts toward progress along the line of eliminating disease from our country, and who believe that bee inspectors "do more harm than good," etc., should read the 1911 report by Wesley Foster, the State Bee Inspector of Colorado. Mr. Foster opens his report by explaining that the appropriation of \$1000 for a year is so small an amount that it has been necessary to confine the work to the counties that can pay for a deputy county inspector to work under the supervision of the State Entomologist. The county inspectors who were doing inspection work under appointment from the county judges have been retained as deputy inspectors where the county commissioners were willing to pay their salaries and expenses. The prospects are favorable for a longer list of counties that are willing to help out in this work for 1912.

Five years ago fourteen per cent of all colonies inspected were affected with foul brood. In 1911 less than two per cent were found infected. Moreover, a carload shipment of bees from Kansas, where foul brood is prevalent, was kept from being shipped into the State.

The following table, condensed from the statistics in the report, shows briefly what has been done.

County.	Inspector.	Inspected.	Diseased.
Otero,	Wesley Foster,	605	1
Prowers,	" "	910	0
Montrose,	" "	813	79
Garfield,	" "	40	..
Delta,	" "	971	201
Boulder,	" "	140	2
Boulder,	W. C. Dyer,	435	1
Bent,	D. S. Jenkins,	22	0
Garfield,	O. V. Coulter,	343	47
Montrose,	Robert E. Foster,	3494	176
Fremont,	F. W. Brainard,	987	184
Adams,	Walter Martin	675	28
Prowers,	D. C. Polhemus,	385	0
Montrose,	J. R. Miller,	1334	176
Otero,	V. O. W. Hopper,	2437	138
Mesa,	William Harkleroad,	8075	130
Montezuma,	R. W. Calkins,	246	148

Some idea of the extent of beekeeping in Colorado is gained from the full report. Notice that in six counties there were more than a thousand colonies inspected, and in Mesa County alone over 8000 colonies were inspected at least twice, and some of them the third time. The inspector in this case, William Harkleroad, evidently did not have much spare time. In all, 26,861 colonies in the State were inspected, and 1576 colonies were found diseased.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

ELIAS FOX, I'm with you, p. 564. I believe I can more successfully combat the faults of a bad cellar than of a bad out-doors.

W. G. SAWYER faces his hives toward the cellar wall, p. 564. I've always faced 'em t'other way—thought it gave them warmer air. I wonder which is better.

G. M. DOOLITTLE, you say, p. 617, that opening cellar doors at night always seems worse than nothing when the air outside is warmer than that inside. Not in "this locality." But your head is level and your heart right on the liquor question, p. 643.

THE *Canadian Bee Journal* is crowing over the acquisition of F. W. L. Sladen, F.E.S., as assistant in apiculture to Dominion Department of Agriculture. I'd crow too. In fact, I feel like crowing that he is on this side the ocean. Those Canucks can't keep him all to themselves, you know. He's too big a man.

THIS YEAR is the record one for long-continued blooming of white clover. Beginning the last end of June it has bloomed continuously till now, Sept. 30, when a good deal is still to be seen in bloom. But I don't know when it stopped yielding. [Clover continued up until late here; nor do we know just when it ceased to yield.—Ed.]

THIS SEASON began in a hopeless style. I fed in June to prevent starving. Then about June 25 white clover began to bloom, and, except for wet days, there was no let-up in the flow from clover or something else until about Sept. 20. Four colonies have given respectively 191, 192, 198, and 198 sections. Not so bad for a season beginning June 25.

CHARGES for the new parcels post, effective Jan. 1, 1913, are a little confusing. I figure it this way: City delivery, or on a rural route, 1 ct. a pound, and 4 cts. extra on each package; within 50 miles in a bee-line, 3 cts. a pound and 2 cts. extra; within 150 miles, 4 cts. a pound and 2 cts. extra; 300 miles, 5 cts. a pound and 2 cts. extra; 600 miles, 6 cts. a pound and 2 cts. extra; 1200 miles, 7 cts. a pound and 2 cts. extra; 1400 miles, 9 cts. a pound and 1 ct. extra; 1800 miles or more, 12 cts. a pound. [See editorial columns.—Ed.]

A. I. ROOT, that alfalfa business, p. 569, looks revolutionary and almost like romance. Think of plants set 2 feet by 3 feet 8 inches apart! I've been out and measured and counted carefully an average

spot of my alfalfa, and there are 20 plants to the square foot. That means 147 plants for every one that ought to be. Then think of transplanting an acre (5940 plants) in a trifle less than an hour! What's that transplanter like, and what does it cost?

THE *Practical Farmer*, page 491, says, "Some States have proscribed sweet clover as a weed, and have imposed penalties upon those who allow it to grow." Can you tell what States? [Sweet clover is included among the noxious weeds in Ohio. We do not know about other States; but we infer from reports that have come in that two-thirds of the other States in the North, at least, have a similar law.—Ed.]

A CORRESPONDENT asks how to winter a weak colony in Tennessee. If very weak, say bees covering three combs, I would unite with another colony. Otherwise I would winter on summer stand, protected, if only by cornstalks—better a box—open in front and well protected on top. [Something will depend on the locality. In the colder climates, the cellar is the place to put weak colonies; but in a climate like that of Tennessee the doctor's advice is all right. Oftentimes, and perhaps in most cases, south of the Ohio River, single-walled hives that are protected by windbreaks will winter almost as well as hives with protection.—Ed.]

ELMER HUTCHINSON, *Review*, 328, thinks temperature a secondary matter in a *very dry* cellar, with good stores and plenty of good healthy bees. In one of his cellars thermometer varied little from 34 degrees from fore part of January till the last week of March, and in 30 years he had never had bees winter better nor consume less stores. I've had the same experience with 50 degrees or higher. No one thing in cellar is more important than air—air, pure air, lots of air. Good for bees, babies, and big bodies. [In all of our experience a temperature of 34 F. in a bee-cellar, if long continued, has generally been very disastrous to the bees before spring. As there is such a great variation in thermometers we arise to ask whether the thermometer that recorded 34 in the cellar under consideration had been tested. We never could succeed in doing good wintering in a temperature below 38, and even then it must not stay there very long. We can winter well with a temperature varying from 40 to 60, providing the ventilation is sufficient and the cellar

dry. We partly agree with Mr. Hutchinson in saying that the temperature is secondary to dryness and ventilation.—Ed.]

SIEGWART says, *Schweiz. Bztg.*, 202, that when bees are shipped without combs or other means to give them a good foothold, many a bee loses its life when the package is thrown, because of the bursting of the crowded honey-sac. If that is confirmed, it seems there might be some danger in the ordinary shaking of bees, especially if they fall upon a hard surface. [We suspect there is something in this. When we first began shipping bees in pound and half-pound packages we did not (as we now do) make use of a series of roughly sawn slats about $\frac{3}{4}$ inch apart, fastened longitudinally through the cage. The result was that many of these packages were reported dead. In later years we put in these supporting slats, and find the bees go through in much better order. The slats are put close enough together so that they act somewhat like combs in supporting the bees. In the old pound packages there was a large amount of vacant space, making it necessary for the bees to hang on to each other. This, we thought, cost considerable leg strain or weariness, and would, therefore, to a certain extent, reduce the vitality of the bees.—Ed.]

PENN G. SNYDER, replying to your question, p. 601, I think the Swiss introduce their virgins to the mating nuclei the same as the Root Co. introduce queens, at least sometimes, to bees in one of their new shipping packages by means of a candied cage. Your experience on three different occasions differs from mine on hundreds of occasions. When a dequeened colony has brood in all stages, it is a rare thing for a virgin to emerge from its cell in less than 12 days, but quite often it is more than 12 days. If it emerges in 12 days, then the larva chosen must have been not more than a day or two old. You say, "Naturally, the older the larvæ selected, the earlier the queen emerges from her cell." That's a rather common idea, but fallacious. We are told that, after a worker larva is fed three days, it is weaned. Then it is fed two days more, and the feeding of that two days makes it five or six days more in developing. If it should be chosen for a queen just before being sealed up, do you think it would then develop within 15 or 16 days of the time the egg was laid? And if chosen any time after being weaned, do you think there would not be a postponement of the time of emergence? If chosen when four days old, if such a larva could be made into a queen at all, it seems fair to guess it would take it so much longer

to develop that the younger larvæ would beat it getting out of its cell. But I don't believe my bees ever chose a four-day-old larva for a queen, if they had any thing younger.

NOT OFTEN is my enthusiasm stirred as it was by a sight of a 3-lb. package of bees without brood or bees, received by express from the A. I. Root Co. They've got the thing down fine as to the matter of package. A cubical cage of wire cloth has inside supports for the bees; and the bees looked so bright and contented—only four dead at the bottom—that I spent some time admiring the outfit as a real thing of beauty. It would be impossible to ask a more successful shipment, unless those four bees could be saved, and it is possible they died of old age. What better way of getting a valuable queen than in such a package? Just run the bees into a hive with perhaps a frame or two of brood, and there you are—no introduction, no risk. [We may explain to our readers by saying that we are making experiments in testing packages suitable for shipping bees, without combs or brood, thus eliminating the danger of transmitting foul brood of any sort, and at the same time very materially reduce the weight, and consequently freight or express charges. Combs and the hive constitute over 75 per cent of the weight of a medium colony of bees; in other words, an ordinary colony with 3 lbs. of bees and brood with honey would run about 45 lbs. shipping weight. Three pounds of bees without the brood, combs, or hives comes within 6 lbs. Bees go at the rate of a rate and a half by express. While a 3-lb. package of bees is not the equivalent of a medium colony, 5 lbs. would be. A 5-lb. package would run about 9-lbs., gross weight, as against 45 lbs. for the equivalent of a colony of bees in a ten-frame single-walled hive. If the reader will turn back to our editorial on page 502, August 15, on migratory bee-keeping he will understand a little better what we are driving at in these experiments; in other words, we hope to eliminate the possibility of transmitting disease, and 80 per cent of the weight in shipping colonies of bees in single lots or in carlots. This would make it possible to ship 1000 colonies of bees in one car as against 300 on combs in hives. The possibilities are so great, and would mean so much to the industry, that we feel inclined to do a little experimenting in a small way, with the view of going at it in a larger way if the preliminary experiment seems to justify it.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Recently I found a young queen laying nothing but drone eggs; but later she laid worker eggs all right. Whether she laid the drone eggs before she had mated or because of her inexperience I have not been able to determine.

* * *

That experiment of coloring bees and letting them fly gives us some useful information as related by Dr. Miller on page 356, July 1. It accounts for the spread of disease, as doubtless young bees go to strange colonies more frequently than older bees; and these young bees may have their stomachs filled with larval food containing more or less disease germs. I believe it a good thing where there is danger of disease; or, where it exists, to set hives some distance apart.

* * *

Mr. Byer somewhere speaks of blueweed as a source of honey. This appears to be the same as that known in Virginia as blue thistle. It has become quite common in some parts of Eastern New York and Western Vermont. One beekeeper in the first county south of me said he had 500 or 600 acres of it within range of his bees. It is considered a very good honey plant, but regarded by the farmers as an unmitigated nuisance. We have found it in three places this season in this county—the first I have ever known here. Beekeepers have a right to raise what they will upon their own land providing they do not let anything spread to their neighbors that will injure them. Honey produced by such means will in the end be bitter honey. An approving conscience is more to be desired than the finest honey in the whitest combs.

* * *

Mr. Walter S. Pouder is a brave man to write as he does on page 379 of the modern claptrap outfit for the ordinary plain farmer beekeeper. And he sells supplies too! The facts are, or appear to be, that only about one beekeeper in ten who attempts keeping bees in improved hives is fit to do so. An improved movable-comb hive is all right in the hands of an improved intelligent beekeeper; but as the average farmer keeps bees I believe the old box hive is far preferable for him and everybody else unless his neighbors are anxious he should go out of business, as he is fast doing. A "bee inspector" has a chance to see all sides and kinds of beekeeping; and of all the absurd things is an im-

proved hive in the hands of the careless farmer who does not look into a hive three times a year, or even once. It is difficult to get into most of such hives, even with a hammer and chisel. I can not express my disgust. There should be, as Mr. Pouder suggests, two kinds of outfits for beekeepers—one kind with every desirable device for scientific beekeepers; and another kind, made in the simplest way, for those to use who will not do any thing but put bees into them and put on and take off supers—a sort of "letalone" hive, as my friend Latham calls his.

* * *

Dr. Phillips' statements on page 451, July 15, in regard to the success of the Colorado Honey-producers' Association, set one to wondering if the same methods could not be used to profit in other States. I have given the subject some thought at one time or another, but have so far been unable to see how such an organization could be made to work here in New England. Colorado beekeepers have a distant market, while we have one near at hand. Their honey must or should be shipped in carload lots to save freight. Here not infrequently the buyers come from the city and look over the different lots of honey produced by different beekeepers, and the grading is arranged between them. Then, again, each beekeeper has his name on his goods, and they are bought by the city dealer on its reputation, or, as is often the case, is sent to the city to be sold on commission. Take our own crop as an illustration. We found time in July to pack over 150 cases ready for shipping at a moment's notice. By August 2 every case was gone. Orders came in for from two to twenty-five cases, and it went to half a dozen or more places, and more will be wanted as soon as we can get it ready. Now, suppose we had a honey-producers' association. We would have had to wait until others had honey enough for a carload, which might be September. Then the honey would have to be sent to some central station to be inspected and graded, and finally shipped to some central distributing city where it would be broken up into small lots and shipped again to jobbers, and perhaps again to retail dealers. We ship directly to jobbers and retail dealers, and I can not help thinking our way is better for us, and I have no doubt the Colorado method of marketing their honey is better for them.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The following letter is self-explanatory, and speaks highly for our State Association:

Mr. Chadwick:—I notice your statement, page 578, Sept. 15, in regard to my bees eating T. Kataoka's strawberries. Mr. Kataoka dropped his suit for damages Sept. 6. Officers and members of the California State Association gave me their help in every way possible, and no doubt the berry-grower saw he had no chance to win.
Pasadena, Cal., Sept. 25. GEORGE B. LARINAN.

* * *

DESIRABILITY OF RANGES.

I had always supposed that there were no ranges equal to those of the button sage, so far as wild growth is concerned, and to a great extent I still believe this to be true; but that there are localities that yield heavily where button sage does not bloom is also true, many of the latter having a great advantage in early honey and pollen that stimulate breeding when there is a shortage of such flora, as was the case in many purely sage ranges this season.

That some plants will yield a surplus in certain localities, while in others the same plants have never been known to do so, also seems quite certain. But it can be seen that, while general conditions can, in a measure, be forecasted, local districts may secure surplus in spite of general *off* conditions, and the season would, of necessity, have to be very bad indeed if some honey from wild flora were not secured.

* * *

I have returned from my ten-day trip among the beekeepers of Southern California. To say that I enjoyed the journey would be putting it mildly, though it was not by any means a continual round of pleasure, and it ended much short of the territory I had planned to cover—due, largely, to the fact that I found many more beekeepers than I had thought there were, all of whom gave me such a cordial reception that oftentimes it afforded more pleasure to tarry than to travel on.

To give in this department the details of my trip would be impossible, so I will give only a summary of certain conditions that struck me most forcibly.

First, I am more nearly convinced than ever that there is a condition expressed by two words that have more to do with our honey-flows than any other one thing; and that is, *late moisture*.

Second, that there are conditions that

surround some of our heaviest-yielding localities that make them less desirable than some that do not have such an abundance of flora, or that yield as light a grade of honey.

Third, that beekeepers are a demoralized set so far as being organized or alive to their own interests. Nearly 75 per cent do not take a bee-journal, and can not be induced to do so. Some, when asked if they belonged to the State Beekeepers' Association, asserted that they had never heard of such an organization.

Let me now return to the first of the three given subjects, that of moisture. This does not mean rainfall entirely, though that is the chief factor in every case, directly or indirectly, and is also the first essential. The nature of soil and its adaptability to holding moisture is a great factor. Rain belts and dry belts in many localities are quite distinctly marked from year to year, apparently because of air currents passing through, to, and from the mountain passes. In other words, a greater amount of rain falls in certain zones of influence than in others. Freak rains, if this term is permissible, have a part in the production in certain localities. For instance, in the neighborhood of Sage, Riverside Co., there was a fall of four inches in May, and the beekeepers in that section are being favored by a bountiful crop of late honey. In another district, near Temecula, a thunderstorm caused a heavy fall in July, which swelled the crop in that locality wonderfully, while down along the moist lands of the Santa Ana River bed, sweet clover is said to be yielding noticeably.

Another case, much nearer home, is at Perris, Cal., where there was an exceptionally heavy thunderstorm early in the summer, and more than half an inch late in August. In that locality bees were drawing comb, storing honey, and breeding nicely.

The altitude is also a factor that must be considered. Naturally the higher altitudes get the heaviest rainfall, are the coolest during the summer, and retain their moisture longer than down in the blistering valleys. Regarding late moisture, as set forth above, I have dwelt on local conditions rather than general, yet the advantage of late general spring rains, following a sufficient winter fall to start the growth of honey-plants, is the greatest factor of all in producing bumper crops, such as we had in 1905.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

COMB OR EXTRACTED HONEY?

This question has often arisen, and has been discussed at length. It was not long ago when the arguments were in favor of extracted-honey production. The tide is drifting the other way, for we find that there is now a better demand and price for comb honey, and consequently its production should follow. We remember well when these discussions were in full sway, and we decided to drift more and more to the comb-honey side, for the very reason that there would be a better demand for this product if everybody else produced extracted honey. The result is that we are to-day advertising our business as exclusive comb-honey producers and shippers, and we have found that it has paid us to stand by comb honey. The demand for that kind has increased from year to year, in spite of the efforts on the part of the extracted-honey producers to advertise the cheapness and better value of extracted honey for the consumer.

We find to-day that the demand for comb honey is brisk here in the South, and at a good price, while extracted is begging for a market at the present time, and that at a lower price, in comparison to the comb honey, than ever before in our experience. While it may be cheaper to produce extracted honey, we have found that it is much easier to sell comb honey.

Of course, we are referring to bulk comb honey, a product that fills the bill for the masses as well as the richer class who want full value for their money.

* * *

COTTON HONEY VALUABLE.

We have found cotton honey to be a valuable product in Central and North Texas territories, and the apiarist who has his bees located within range of extensive cotton areas can count on at least an average crop, year after year, with more certainty than many of the other numerous honey-yielders that we have.

It is but a few years, comparatively, since cotton came into prominence as a honey-yielding plant. Years ago cotton honey was hardly known, this being due, perhaps, to the fact that the honey which the bees obtained from the cotton was attributed to some other source. But of late years, especially when it is grown on rich land, in valleys and river bottoms where the growth is luxuriant, cotton has come

to be known as one of the very best honey-yielding plants. It yields best when the atmosphere is warm and damp. On poor soil or on sandy land it does not yield nectar plentifully, and, in some cases, not at all. In the average season a good yield may be expected from cotton in the black-land districts and in the river valleys. Under favorable conditions it is not excelled by any other nectar-yielding plant in the cotton belt.

The yield is most abundant in the early morning, and it decreases toward the middle of the day as the atmosphere becomes drier. In the afternoon, unless the season is very dry and hot, the yield begins to increase again. During cloudy days, or when the atmosphere is damp, the yield continues abundantly throughout the entire day.

The nectaries from which nectar is secreted are located under the bracts next to the stem of the blossom. There are other nectaries located on the under side of the leaves, one on each of the three main ribs of the leaf. They can easily be located as small low indentations on both blossoms and leaves. There are three under each blossom, and those located on the ribs of the leaves are located about a third of the length from the main stem of the leaf. At the proper maturity of both buds or blossoms and young leaves, the nectar may be easily seen in a large drop in each nectary, and is easily gathered by the bees. During favorable conditions it is not necessary for the buds or "squares," as these are called, on the cotton plant, to develop into full bloom, but nectar secretion begins before the blossoms open.

Cotton honey is very light in color and mild in flavor when thoroughly ripened, and it compares favorably with the very best grades of honey. Honey from upland cotton, or that which is grown on poorer soil, has a slight amber color. When first gathered, cotton honey has a flavor which is very characteristic of the sap of the cotton plant itself; but this disappears as the honey ripens. During a heavy flow there is a strong odor in the apiary like that produced by bruising cotton leaves.

Ordinarily, cotton honey granulates easily, and in the granulated form is almost pure white and very fine-grained.

The flow begins ordinarily about July 1 and continues until frost, except when the fall of the year is a very dry one that causes the cotton to stop growing.

Conversations with Doolittle

At Borodino, New York.

BEE-CELLARS—CONTINUED.

"I have done some thinking about beecellars since I was here before, and have come to the conclusion that it will pay me to build a special cellar."

"What is the lay of the land near your apiary?"

"On the west of it, and facing the east, is a rather abrupt hill, rising about twelve feet high. The base of this hill comes near the center of the beeyard on the west. Will that be a good place for the cellar?"

"Most admirable; for where a cellar can be placed in a side hill, having a slope more or less abrupt, and the slope being on the side where the entrance is desired, the question of ease of access is settled, so that the labor of carrying in and setting out will be much less fatiguing than where from three to eight steps for a stairway have to be used. Then where the entrance can be on the east side, it is much easier to guard against the cold, and at the same time it guards fully as much against the heat of the sun in February, March, and April. The entrance provides also against the extreme high winds of the west which rage to a great extent above all others in this section. By the removal of very little earth you can have an entrance on a level with the bottom of your cellar, so that with a wheelbarrow or a hive cart the bees can be run right into the cellar, thus saving a lot of hard lugging and lifting."

"The soil of this hill is a sort of gravel. Will this be as good as any?"

"Many prefer sandy or gravelly soil, as there is less danger of dampness. But to my mind it makes very little difference. At the farmer's cellar, where my out-apiary is situated, water runs right through it in slight depressions cut for this purpose in a stiff clay soil, at all times when the ground is at all wet from fall rains; but so far as I can see, the bees winter there as well as anywhere. If the stores are good, bees seem to winter well in almost any cellar where an even temperature at some point between 38 and 45 degrees can be maintained. But with a cellar where the temperature is unstable, going anywhere from below the freezing-point up to sixty one week, and back again the next, or where it changes with every change outside, poor wintering is apt to result, no matter what the soil is."

"What about proper protection?"

"Having your excavation made to the

amount of about two square feet for each colony you expect to winter, say 8x25 square feet for 100 colonies as the floor surface, you will build permanent walls all around the sides about 7 feet high, but the top of the wall should not come more than six inches above the surface of the ground, or just enough to turn off all surface water at any time the soil might become excessively saturated with water. On top of these walls should be placed old or worn railroad rails, cut to the proper length if you can possibly get them, and on these put flagstones; or a covering of concrete can be made of suitable thickness to hold the earth which is to be placed on top, to a depth of at least three feet. Four feet would be better still. Over this earth is to be built a cover of some kind which will shed water. After the first year this covering of earth will remain dry, as the heat of summer will make all this as dry as dust. With four feet of earth over such a special cellar in a side hill, the temperature will not vary more than five degrees during the whole winter. Often during the whole winter, after the bees get settled down from being carried in, there is not two degrees variation in my cellar built on this plan, the mercury standing from 42 to 44 degrees during the five months while the bees are in this cellar. The doorway into the cellar should have 'wing' walls, turned at right angles for three doors, which should be two feet apart, thus enclosing two dead-air spaces of two feet each when the doors are shut. This is very essential to the maintaining of perfect protection and an even temperature."

"What about ventilation?"

"This is a matter I am not wholly certain about. I have wintered bees with abundant ventilation provided through what is known as sub-earth ventilators, which take the air from 100 to 200 feet away from the cellar, and carry it under ground at a depth of two or more feet, so that it becomes the same temperature as the cellar by the time it enters it. I have also wintered bees without any provision being made for air, keeping the cellar as close as possible, and secured fully as good results as I did when I had the ventilation."

[We know that Mr. Doolittle has had good success with his cellar; but nearly every other beekeeper has secured far better results with abundant ventilation.—ED.]

General Correspondence

THE SECRET OF THE FLOWERS

BY P. F. X. RYAN

The glorious diadems which are studded so bountifully over Nature's beautiful vesture have always possessed a peculiar charm for me; and greatly, therefore, did I welcome Mr. J. H. Lovell's learned effort to penetrate the hidden meaning of these mysterious gems of Nature, and to ascribe to them some significance, real, not fanciful, as is the case with the conventional "language" so dear to lovers. My object in writing is to offer a friendly criticism of a few points on which "I have my doubts," and I am confident that Mr. Lovell will rejoice to find some one ready to use the pruning-knife of friendly criticism on his work, and, if need be, to write further to elucidate such matters as may be doubtful or otherwise called in question. It is far from my intention to brandish the battle-ax of censure; and if I appear to do so, I pray he will forgive.

Referring to page 21, Jan. 1, it seems to me Gray was well within the mark in his assertion that

Full many a flower is born to blush unseen,
And waste its sweetness on the desert air;
for, as far as we can judge, in many instances all their glory is bootless, for there are "full many" which are self-pollinating, and even inaccessible to insects. They can not, therefore, take cover under the cloak of usefulness to insects as a *raison d'être* for their beauty and sweetness. They are, then, so to speak, "wasted on the desert air," though, of course, they proclaim the glory of the king who, clad himself in golden raiment, transmits a shimmering luster to Nature's habiliments.

However much Sprengel's opinion (page 22), that the bright hues of flowers serve as signboards to nectar-loving insects, may have gained ground, I must confess that I am personally somewhat skeptical; for I find the theory (and it is at most only a theory) confronted by many ugly facts. Nothing is more unscientific, and to me nothing is more distasteful, than to see scientific men making hasty generalizations, or parading scientific hypotheses in the garb of facts. Lubbock makes an assertion similar to Sprengel's, that the very arrangement of the colors, the circular bands and radiating lines, are all with reference to the visits of insects. Why, then, I ask, is the apple-blossom painted on the *back* and not on the front? Here, surely, is an instance of the complete un-

satisfactoriness of their contention, for the color of the *outside* is just about as useful an indication to the insects of the location of the nectar as a book's cover is to the scientist in quest of an article on paleontology in a work on evolution.

Let us take the case of wild flowers. Mr. Grant Allen, whose views in many ways seem to coincide with those of Mr. Lovell, points out that the *irregular* flowers are *variegated*, while *regular* forms have almost always a marked *uniformity*. If the insects were in need of a clue to aid them in their search for nectar, surely this clue would be more needful in regular form. But, as I have said, the variegations are in the irregular forms.

In pinks the color-bands run *transversely* to the course of honey-seekers, so that, if these finger-posts are trusted to, they play the poor little insects false, which is not in accordance with the habitual workings of kind Nature.

In the milkwort (*Polygala*) the sepals are the conspicuous part, and their veins are as clearly defined as many other petals; but the color indication leads just to where the honey is not; so it is evident that the weary insect in quest of nectar would be as badly fooled, if he trusted in these unreliable advertisements, as the weary traveler who, on seeing in the advertisements of a well-known hostelry every indication of the "home when from home" which he desires, and repairs thereto, only to find a magnificent *bar*. For bed and board he must apply elsewhere. I tried to enter on a study of the problem which Mr. Lovell treats so exhaustively, with a mind free from bias, and now make the candid admission that I have concluded my investigations by entertaining a learned doubt on the matter, pending the framing of a hypothesis which will give a more intelligent explanation of observed facts.

Having thus controverted Sprengel's major proposition, that the lines, dots, etc., serve as finger-posts in all cases, I reject his inference that the general color of the corolla advertises to insects, even when afar off, the presence of the desired nectar. I have known many instances of insects visiting flowers which secrete no honey at all. Are they the victims of a kind of confidence trick? If the color does all that is claimed for it, why have they not become acquainted with the meaning of the label, and why do they not refrain from wasting time in long tours of inspection which in every case prove to be fruitless?

Even Lubbock suggests that the object of their visits is a vain search for honey. The school of which Mr. Lovell seems to be a mild disciple insists that flowers require insects to assist in their propagation, and therefore must attract insects; and those which are the most attractive succeed best in the struggle which is so essential a part of Darwin's theories. But we have the order of cryptogams—ferns, etc., which owe not one tittle to the insect world. Sprengel says, "It seems that Nature is unwilling that any flower should be fertilized by its own pollen," and Mr. Lovell mentions that Darwin discovered that frequent crosses increase the vigor and productiveness of the stock, and that an occasional cross is indispensable.

But, on the other hand, Sir John Lubbock admits that the majority of flowers have retained the power of self-fertilization; and not only, indeed, have they retained the power, but their vigor and vitality are hardly rivaled by any crossbreds. The "lady's smock" (*Cardamine pratensis*) is prolific to a remarkable degree, and its flowers are incapable of fertilization. The Herefordshire "red streak" has existed now for close on to three centuries in spite of the fact that it is self-propagating; and there is not the faintest hope of its being rapidly exterminated, let alone dying out. The lesser celandine (*Ranunculus ficaria*) indulges in a wealth of blossoms, and appears in early spring when very few insects are astir. It contains not a single ripened head, and yet it multiplies prolifically. These instances surely upset Darwin's "Nature abhors perpetual self-fertilization." For a cross we require two *plants*; but in the case just cited we have not even two distinct *organs*. Those flowers which are propagated by buds and slips evince no disposition to realize Darwin's dream of their extinction; and, in spite of Nature's alleged abhorrence, they hold the fort.

On page 54, Jan. 15, Mr. Lovell says that "*occasionally* irregular flowers revert to ancestral stages and produce regular forms." "*Occasionally*," Mr. Lovell? What of the law discovered by Mendel? Some forty years ago George Mendel made his classical experiments with the common garden pea, in the case of which he abundantly proved a return to the parental forms. He experimented with seven pairs of characters which he crossed and left to self-fertilize. In the case of the crossing of the tall and dwarf pea he found that the first generation exhibited the characters of one parent only—that is to say,

all were tall. But the tall form, although for the time being subduing the dwarf, did not destroy its vital principle, which remained potentially in the tall form. In the second generation the dwarf parentage asserted itself, and 75 per cent displayed the dominant features (those of the tall), and 25 per cent those of the dwarf. The 25 per cent bred *true* to their dwarf ancestral type constantly and invariably. The 75 per cent bred 25 per cent true to their tall parent, the remaining 50 per cent being impure dominants. With these 50 per cent the history of their ancestors repeats itself. Here, then, the irregular form *unmistakably* "reverted to ancestral stages and produced regular forms."

On page 53 "beautiful flowers," and on page 239, April 15, "highly colored flowers," are designed for insects, and exist only where they can behold them. Where is there a more highly colored flower than the poppy? and yet it contributes not one iota of nectar to its insect visitors. If a casual connection between the gaudy-colored flowers and the insect world is to be established, or if they can in any way be said to be correlated, it seems that the flowers which have not the wealth of color, and which, consequently, have not been designed for insects, should not have any claim to their patronage; yet the common mignonette, the least likely to appeal to one's esthetic taste, and in which Nature has certainly not been prodigal of her paint, is most popular in the bee world. So also clover—perhaps the greatest honey-plant on earth. Still further is this statement of Mr. Lovell's controverted by the unobtrusive sycamore and lime (basswood) trees. On page 313, May 15, Mr. Lovell lets slip the statement that white flowers probably exceed all others in importance to beekeepers, which seems a little inconsistent in the face of his opinion on highly colored flowers just referred to, and in view of his reference to blue flowers on page 239 and 241, April 15. Blue flowers are not pre-eminently honey-bearing. In a vast acreage of blue hyacinths we do not see as many bees as in the inconspicuous and unpretentious green tassels of the sycamore. Heather and mignonette compare more than favorably with the speedwells and harebells, and even with the sage.

Here, too, is a very peculiar fact: The violet is blue alike in summer and spring. Why, then, is the spring violet popular with insects when the summer ones are denied the courtesy of their visits? Why, further—and this is a serious difficulty to

the Darwinian school—do not the spring violets, with their galaxy of insect friends, produce more seed than their summer sisters?

On page 53, Jan. 15, Mr. Lovell gives the prismatic colors as six. Does he not omit a seventh—indigo?

A word now about Haeckel, page 237, April 15. Ernst Haeckel is described by Mr. Lovell as "one of the most eminent of living biologists." This, I feel, is an overgenerous assessment of the scientific worth of the Jena biologist. First and foremost, Haeckel as an atheist bases his scientific investigations on a false foundation, and his views, consequently, can be taken only *cum grano salis* by Christians. A man who speaks of the fortuitous concourse of atoms, who does not postulate an internal law and a master hand to direct the destinies of all created matter, but, on the contrary, assumes the existence of random variation in this world of order, is not only a strange anomaly, but, in my opinion, sacrifices all his right to the name of a true scientist. The leading scientists of to-day reject Haeckel. In his lectures on the "Problem of Man," 1908, he dragged his scientific honor in the mire of falsehood, and, clothed in this robe of scorn, he can be regarded in no other light than that of a common forger. Haeckel's boldness made Darwin tremble; but Haeckel's boldness led an eminent scientist, Doctor Brass, to probe his allegedly scientific discoveries, with the result that he openly accused him of forging certain plates, and, moreover, drew from him the admission *that eight per cent of his drawings were falsified*. Here, then, is the evolutionist at large, claiming to be a scientist, and obtaining the much sought missing link by overt forgery!

And now let me conclude with a word with friend Crane, whose Siftings are a never ending source of pleasure and information to me. With him I cordially appreciate Mr. Lovell's erudite articles, page 153, March 15; but he introduces a doctrinal point on which I must beg to differ. It seems rather out of the way to speak of the Man-God as learning any thing from the hills and valleys, flowers, etc. If I mistake not, he was invested with all human science, and had naught to learn from his own creatures. And did he *command* us to consider the lilies? His words were, of course, addressed to the people about him, and even then could hardly have referred to constant meditation on these things, since he was only illustrating the providence of God. If he cared for

the lilies *a fortiori*, man's wants would not be neglected. In any case, it is no more binding to-day than the laws relative to ablutions, purifications, and circumcision of the old dispensation; and who, on reflection, will say it is "as much a command" as to say, for instance, "Thou shalt not steal"? Friend Crane also seems to understand the lily of our modern flowers; but it is really the anemone. In the Scriptural allusions the lily grew in the valley among thorns, in rivers, and in places where the shepherds led their flocks—in fact, almost everywhere, since the multiplication of the Jews is likened to it. On the occasion in question, Christ evidently pointed to some of them; and they must have been numerous or he would not have used the illustration. If the white lily is understood, Holy Scripture can not be explained, since it is known only a little in the north of Palestine, and even there it requires to be cultivated. It does not grow among rivers, etc., nor can the lips (as in the Canticles) be compared to it. The anemone, on the other hand, answers all the descriptions, and is appropriate to all texts.

Napier, Hawkes Bay, N. Z., July 14.

Bee Thoughts

The sun is up, the clouds are gray,
And promise now a pleasant day;
The earth is fresh and fair and bright,
And clover-fields are red and white.
The birds are on the wing, and we
Will go into the fields and see
If nectar in the flowers is found—
Enjoy the beauty all around.
What pleasure rare, what pure delight,
To wing the air this morning bright!
To leave the crowded hive, and fly
Above the earth, beneath the sky!
Now over pastures, flocks, and herds,
And meadows full of singing birds,
Past worthless flowers and rocks and rills,
By waving grain and wood-clad hills,
To scent the fragrant clover-fields,
And sip the sweet each foret yield,
Or rest beneath the shade, and sup
From many a linden's nectar-cup.
Nor yet forget, the while we roam,
To gather bread for babes at home.
Thrice blessed home! O mother! queen!
No bee like you was ever seen.
When we return, and flight is o'er,
Two pollen loaves, with nectar store,
We bring back to our home, and give,
And know the joy it is to live.
Our lives are brief, our days are few;
We pass away like morning dew;
And so we work with all our might—
Make play of work, for that is right.
And thus, by turning work to play,
We make the most of life each day.
Oh what a charming world is this,
When work is play and sweetest bliss!

J. E. CRANE.

GOT INTO BUSINESS AT ONCE

BY EDWARD F. BIGELOW

The ways of honeybees, especially their relations to the queen, are often surprising. Sometimes there is great difficulty in introducing a queen by any method; but once in a while it seems as if the bees were

extraordinarily desirous of a queen, and remarkably expeditious in liberating her. I recently had three queens come in by mail. Two of these caused a great amount of trouble and prolonged fussing and experimenting; but one was received more quickly, and began to lay eggs sooner, than any others with which I have ever

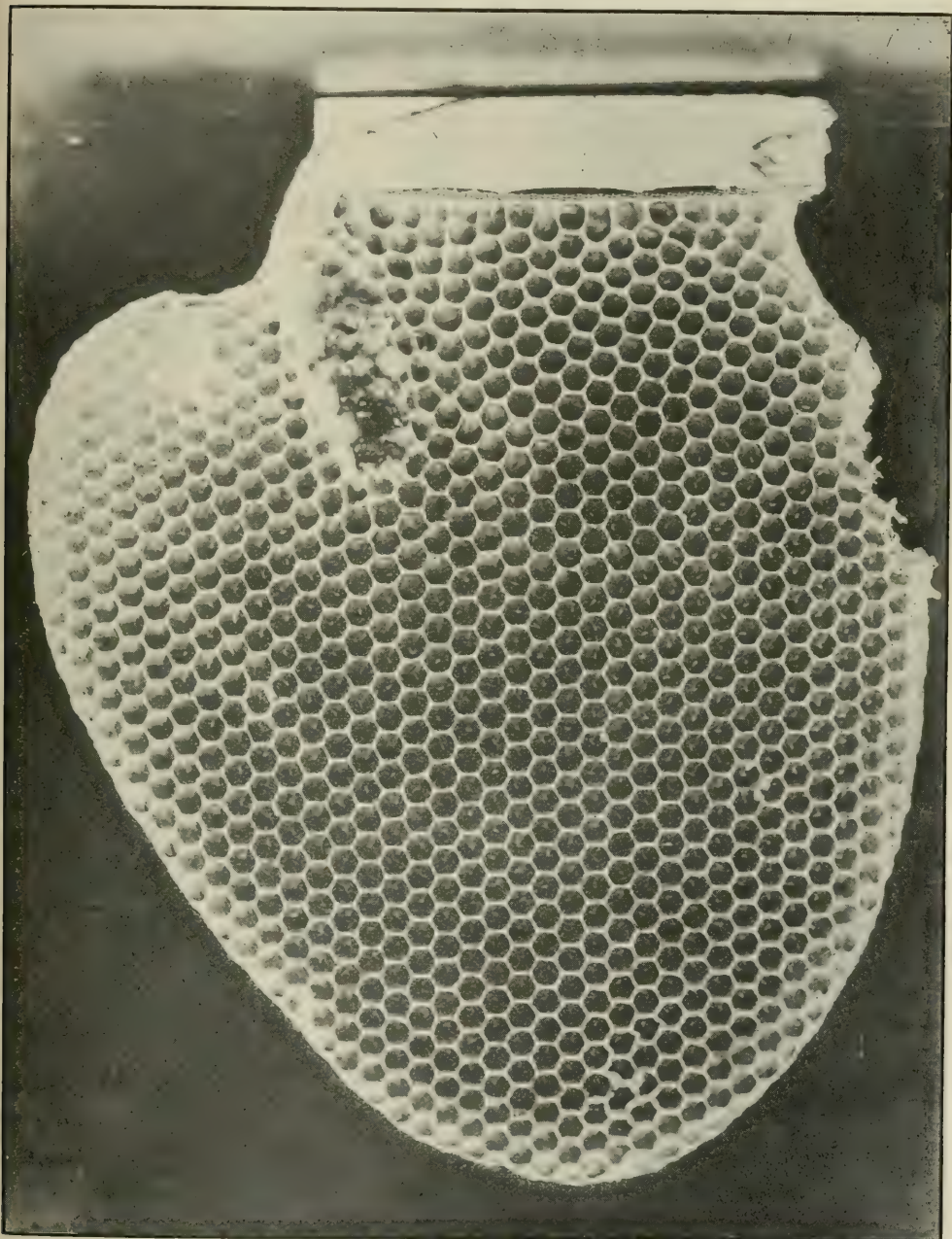


FIG. 1.—Piece of comb which the bees built down from an introducing-cage. Notice that the new queen immediately laid in nearly every cell.

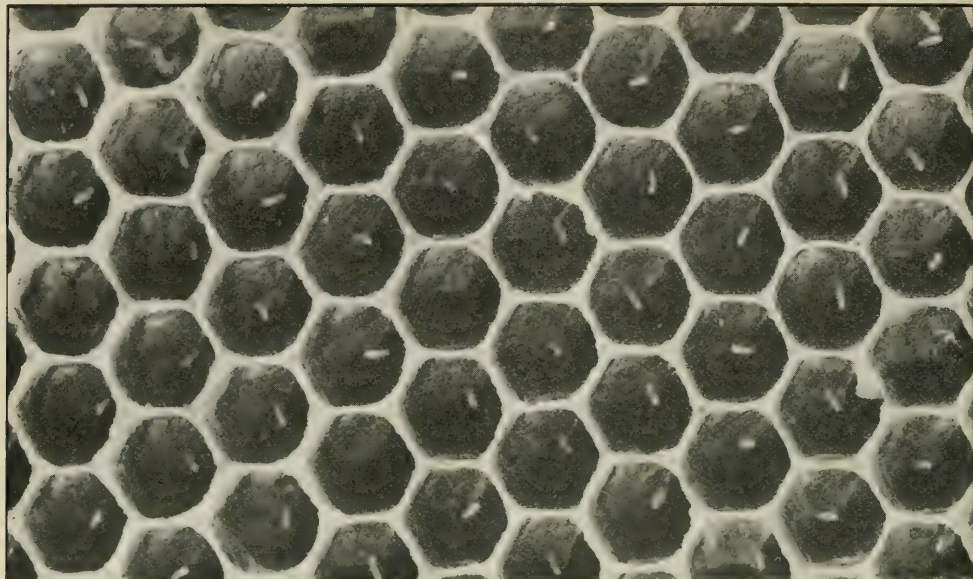


FIG. 2.—Close view of eggs. Notice the cell in the lower left-hand corner contains two eggs, while that at the right-hand corner has a larva.

experimented. I opened the hive about ten hours after the cage was put in, and discovered that the bees had nearly eaten out the cardboard and candy in order to release her. I thought that, as every thing was progressing so well, I would leave the arrangements undisturbed for two days more. Imagine my surprise upon opening the hive to find a large piece of honeycomb hanging to the queen-cage, with almost every cell containing an egg. The queen had completed her task on this newly constructed comb, and had made good headway on a comb foundation of the regular size that the bees had drawn out. Such diligence is a joy, and that queen and her adopted daughters are the pride of this apiary.

Arcadia, Sound Beach, Ct.

[The two engravings and the cover for this issue show the eggs that this queen laid so quickly. In Fig. 2 a larva is shown in the upper left-hand corner. This photograph was probably taken at least three days after the eggs were laid, else there would not have been time for this particular egg to hatch. See editorial.—Ed.]

BETLES THAT MADE THE BEES CROSS

BY J. M. FRANCIS

We amateurs are constantly meeting with wonderful experiences which are quite familiar to the older beekeepers. Neverthe-

less, as I am looking for information I beg to say that, though I have been associated with bees more or less since I was a barefoot boy, and have commenced within the last year and a half beekeeping in a modest way, I am up against a proposition at the present time which has puzzled me not a little. I have three stands of Italian bees which, up to within the last thirty days, have been exceedingly gentle and tractable. I have never hesitated to pull the hives all to pieces, under proper weather conditions, without using any protection for the hands or face, and sometimes I do not find it necessary to resort to smoking. Imagine my surprise during the past three or four weeks to find my bees so ill-natured that one can hardly approach within twenty feet of them without meeting a hostile reception. I was much puzzled by this until I noticed that there were two or three balls of angry bees in the front of each hive, and on further investigation found that the center of these balls was composed of a beetle.

Our entomologist has informed me that this is the insect ordinarily known as the "bumble-flower beetle," or "June beetle" (*Euphonia Inda*), which is quite common in all of the Northern States. It usually feeds on the pollen of flowers, and, later in the season, upon ripened fruit. Undoubtedly the odor of the honey attracts these beetles, and they attempt to force their way into the hives. It then becomes

a struggle which lasts day and night. The bees cover the beetle, but find it impossible to sting it to death because it is covered with a horny sheath. They finally succeed in dragging it out a few inches, and then the beetle deliberately begins to force its way back to the entrance of the hive. They have been such a pest in my yard that I have killed 16 on one hive in a single week. You can imagine that this continual fight against the beetle has spoiled the tempers of the bees, so that they cease to draw any distinction between the beetle with the hard skin and the man with the soft one.

BACK-LOT PROFIT.

Before closing I beg to say that the year 1912 has certainly proved to my satisfaction that bees can be kept with profit in a city backyard. In April, 1911, I purchased a three-frame nucleus and tested queen which built up into a magnificent colony during the season. Honey was so scarce that I found it necessary to feed about 20 pounds of sugar in the late fall, but this was money well spent, as the hive came out of the cellar in April, 1912, with a tremendous colony well supplied with stores. In the early part of May this original colony swarmed, and from these two colonies I have already taken off over 150 lbs. of beautiful white-clover honey, nearly half of it in sections. Aside from this, both hives are running over with bees, and every particle of available space is

filled with white-clover honey, which is sealed for the winter. There is practically no pasturage nearer than a mile and a half, and it is very likely that a great deal of this honey was gathered as far as three miles away.

For the benefit of any office man who may see this, I would say that I should keep one or two colonies of bees for the mere pleasure of observing them, even if they did not yield a pound of honey in excess of their own requirements. To one who has the slightest taste for such things it is a great relaxation and pleasure to leave the office, to forget business worries, and study nature at first hand. Such little incidents as beetles and an excess of queens at the time of supersedure merely add interest and pleasurable excitement.

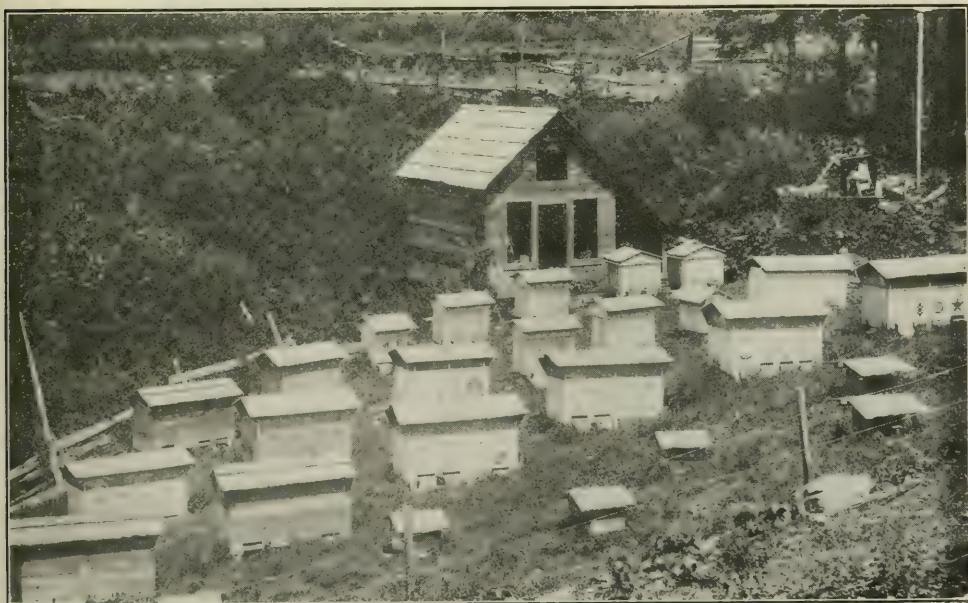
Detroit, Mich., Sept. 11.

FOUR ENTRANCES ON ONE SIDE OF A WINTER CASE

BY F. F. GEORGE

In my apiary I have 62 colonies of hybrid bees, 1 to 4 in a case, as shown in the engraving. The cases are packed in winter with a mixture of chaff and sawdust. I find that the hieroglyphics on the hive fronts do not prevent the bees from occasionally getting into the wrong hive.

The contracted entrances indicate new swarms. A dummy can be slipped from



George's packing-cases with the entrances all on one side.



Sweet clover that grew luxuriantly near a place where oats had been unloaded from a car, showing that the seed was mixed with the oats.

under the hive leaving a two-inch space for air. No swarms issued this season. The stake at the left holds a bundle of ripe mullein heads, which is my swarm-catcher.

The small hives in front are double-walled, and there are three apartments to hold nuclei for queen-raising.

Fraser, Idaho.

[If you had located your entrances on opposite sides of the cases, two on a side, we do not think you would have much trouble from bees getting into the wrong place.—Ed].

SWEET-CLOVER SEED IN OATS

BY GEORGE REX, JR.

The engraving shows a honey-plant which grows about 5 feet high, and branches out freely. It produces white flowers in profusion, which the bees simply swarm over. The flowers are very fragrant, and one can smell it from a distance.

I think it is something of a wild alfalfa clover. It grows at an old abandoned wharf, and covers about half an acre. I was informed that at this place western

oats were unloaded from the railroad, and that the seeds must have been in the oats. What do you think it is?

Stettlersville, Pa., July 24.

[Unless we are greatly mistaken this plant is the white sweet clover.—Ed.]

DO BEES LOSE THEIR STINGS WHEN THEY STING OTHER BEES?

BY L. P. HOLMES

An expression in the footnote to Dr. Miller's *Straw*, p. 540, struck me with surprise. It is that "worker bees sacrifice themselves as well as the drones" if they sting them. I thought it was an established fact that bees, in stinging others, do not lose their stings, consequently do not endanger their own lives. I ask now, for my own information, has any one ever seen the sting of one bee attached to another that has been stung to death? I never have. Among all the bees stung to death in robbing, and among queens that have been stung to death by other queens or by workers, I have never seen the sting of another bee attached to a dead one. I have seen a virgin queen, upon being introduced to

a stranger colony, seize three workers in succession and sting them to death, still retaining her sting. My observation of the process of stinging another bee has shown me in every instance that the point of attack aimed at is the small aperture in the thorax through which the viscera is connected with the abdomen. Unless this point can be penetrated by the sting, the attacked bee is apparently safe from harm.

It seems to be necessary for success that the attacking bee should get upon the victim's back. I have watched two queens fighting, and noticed that, when they clinch face to face, the hinder and middle legs are used very effectively to push away the opponent's sting, while using every effort to reach the vulnerable point at the waist. I once watched them fighting in this way for what seemed to me to be 15 minutes (I did not time them by my watch). They fought until exhausted, and quit for a rest. After a time they tried again with no result. In the third round one got upon the other's back, and the fight was at an end. If I am right on this point, a worker would run no risk to herself in stinging a drone.

Still, I incline to the belief expressed by the editor and Dr. Miller that the action of the workers toward the drones is in most cases, at least, a bluff. I have never, so far as I can remember, seen the drones curl up as the workers do when stung.

Frankfort, Kan.

[The sting of a queen is a little different from that of a worker, and it is probable that it is more easily withdrawn. It may be that workers are able to withdraw their stings when they sting other bees; but, nevertheless, there have been plenty of dead workers found with stings in their bodies. This, however, does not prove that the workers *always* lose their stings when stinging other bees. In fact, it is quite probable that they frequently do withdraw them. We should like to hear from others. —Ed.]

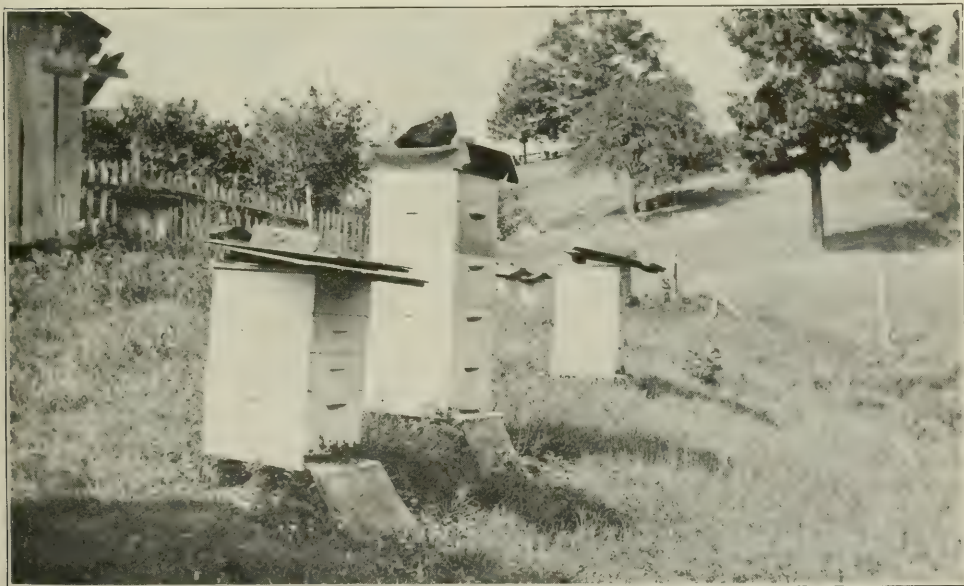
AN AVERAGE OF 103 POUNDS OF SUMAC COMB HONEY IN 14 DAYS

BY W. S. BASIM

The engraving shows a part of my beeyard (ground is too rough to get all colonies). This picture was taken July 4, 1911, at 4 P. M., when the honey-flow was nearly done. The tall hive holds a small colony guarding combs of honey.

My average yield was a fraction less than 103 lbs. of honey in 4 x 5 sections. The best yield ever before was 67 lbs. We had no clover last year, and this honey was almost all gathered in 14 days from sumac. I never had such a honey-flow since I have been in the bee business. No colony got the swarming fever.

Vincent, O.



Corner of W. S. Basim's apiary from which he secured an average of 103 sections of sumac honey per colony in 14 days.



Apiary of Clem Le Moine, Luton, Ia., that was nearly destroyed by a flood last spring.

APIARY NEARLY DESTROYED BY A FLOOD

BY CLEM LEMOINE

My apiary was nearly ruined by a flood last spring which entered in the cove. The picture shows some of the bees which were saved on April 23, 1912, when it was still very cold. This apiary had to be worked for increase only this season.

Luton, Ia., June 7.

THE CRAZE FOR COLOR

Breeding for Appearance has Resulted in a Poorer Strain of Italians

BY MAJOR SHALLARD

I have been asked which I prefer—the light Italians or the dark. My experience leads me to believe that there is no comparison. I think the dark leather-colored are as much ahead of the light goldens as a draft horse is ahead of a saddle back for plowing purposes.

Many years ago, when I first started beekeeping, somewhere about the time A. I. R. used to tell us all about Blue Eyes in GLEANINGS, I started to breed a race of utility bees based on dark leather-colored stock. After ten or twelve years of breeding from only those queens whose progeny showed marked ability to get honey, I had a breed of bees which I can since see were superlatively good. I did not appreciate just how good these bees were until the last few years. I got splendid crops, and my hives used to be always boiling over with bees. I did not care how dark a queen was as long as the markings on her progeny were even; but she

had to have certain qualities. First, her progeny had to be exceptionally good honey-getters; then she herself had to be large and well proportioned. She had to lay good plump eggs, and all in the same position in the cells. I get letters like this every now and then from old customers:

Send me another leather-colored queen. The last I had was a great honey-getter, and her daughters are just as good.

I have to return the money and tell them I have lost the breed. My output got so big that I started a bottling business in Sydney, and I had to leave the care of my bees to some one else.

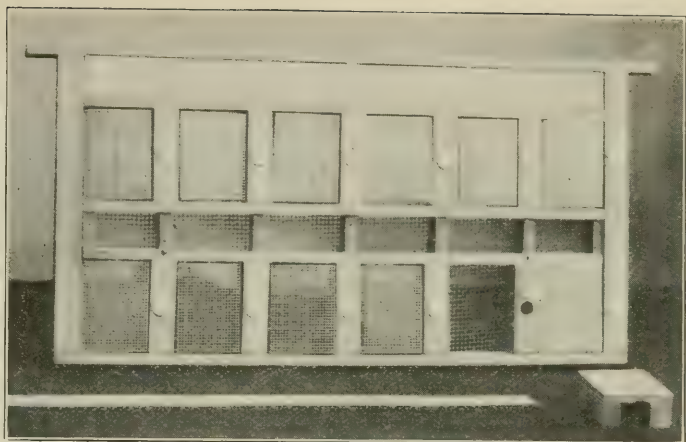
Then the craze came in for golden Italians. I wish I had never seen them. I got some, and between carelessness on the part of my beekeeper, and breeding from golden stock, my choice breed of leather-colored bees was a thing of the past, almost before I recognized the fact. I have got back to the bees myself since, and I have tried many times to get a new start on dark leather-colored stock; but I have never succeeded. I have got leather-colored (?) queens from breeders many times, but they were all too light. It seems to me there are no leather-colored bees left; no one seems to have any. I do not know a single apiary where there are any of the old stock. I have walked through every apiary I know of, looking for the old sort, and have never found them. I have had beekeepers offer me any queen I liked in the apiary for nothing; and after looking at all the "golden beauties," I have come away without any. Now you will, perhaps, say that I am prejudiced. I am not. I am a man who cares nothing for looks, and that is all I think the goldens

have in their favor. I go strictly on utility.

I have had queen-buyers come to the yard and pick out a golden and take it away, against my advice to take a leather-colored queen that was really worth twice as much. It was the appearance and color that got them. They could not resist the looks. When I was a young fellow the Black Spanish fowl was the finest egg-layer one could get; but the fanciers started to breed "for feather," and they bred all the ability out of it, so that now as a breed it is completely ruined. My fixed opinion is that the same has been done for bees. It has been color, color, color, all along, and the business side has been lost sight of.

I was through the apiary some years ago of (I believe) the best queen-breeder in Australia, and he showed me 26 hives of his very choicest and best-bred bees. They were as gentle as so many flies; they were as golden as sovereigns; all the bees were evenly marked; but they were the laziest bees and the poorest honey-getters in the whole yard. He bred for color, and got his bees into the condition I told him he would, some years earlier. He had bred all the utility out in trying to breed color in.

You have something to say in the issue of June 1, p. 327, on five-banded stock. Of course, your remarks are right, to the extent that, if a man advertises five-banded stock, he should not send out four; but why do the people want five-banded stock? Would a ten-banded bee be any better than the old three-banded bees of the old Ligurian strain? My experience is that they are not half as good. I notice the gentleman eulogizes his golden drones. I never had any bee disease, or much, in my apiaries until I got golden drones. I have never had such big crops as before I got them. I believe the American breeders have done the industry a lot of harm, weakened the race of bees, and made them more liable to disease, and destroyed their honey-gathering qualities by the craze for color. The trouble is not irreparable. Go back to scratch and start fresh. Breed for the big dark three-banded fellows we used to have



Wilson's nursery and introducing-frame.

before the yellow craze came along, and all will be well.

Mororo, N. S. Wales, Australia.

[It is hardly necessary for us to state that Major Shallard almost echoes our experience. Some day the craze for color will give place to honey-gathering qualities.—Ed.]

A COMBINED NURSERY AND INTRODUCING FRAME

BY W. H. WILSON

The photo shows my queen nursery, which I find very useful in saving young queens. I also use it as an introducing medium. The young queens hatch out in the different apartments, where they find plenty of candy; and when I want to introduce one I simply open the port opening into the desired queen, and let the bees eat out the honey and release her.

Byesville, O.

[Queen nurseries are very convenient to have, especially if a lot of cells are ripe at the same time and there are not enough nuclei to go around. Under such circumstances the nursery acts as an overflow receptacle.—Ed.]

WHY DID THE EUROPEAN FOUL BROOD DISAPPEAR?

Did the Change of Feed Cure the Disease?

BY CHAS. S. SHARP

Late last summer I opened three of my hives with a hive-tool that I had used the day before in inspecting several colonies that were afflicted with European foul brood. I did not use the same hive-tool through ignorance, but through thoughtlessness. Two weeks later I thought I de-

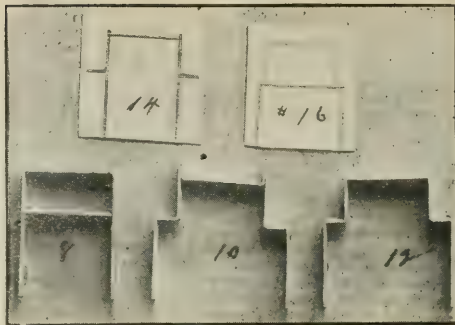
tested symptoms of European foul brood. A week later my suspicions were confirmed. The disease did not become extremely bad, owing to the honey-flow from golden-rod and aster; but it was very noticeable on all the combs of each of the three hives. About the first of October I extracted every drop of honey from those hives and started to feed a little sugar syrup for a few nights until I could get some cut loaf sugar from down town. I put a super on top of the hive and dumped in ten pounds of cut loaf sugar all over the top of the frames, placed a piece of burlap on top of the sugar, and filled the super with sawdust. This spring, as soon as they would take syrup, I commenced to feed them and took off the cube sugar that remained (about three pounds each). These colonies are strong and vigorous, and up to date do not show a sign or symptom of European foul brood.

The point I wish to raise is this: Is this method or plan a cure for the disease when it is contracted too late in the season to attempt to cure by shaking? As I haven't any afflicted colonies I am unable to carry the experiment any further this year, and I am very certain I do not intend to procure any diseased colonies to satisfy my curiosity.

I wish three or four of the older beekeepers would try this plan, and let us hear the result next spring; but I would caution the beginner not to try it, for the mere fact that it appears in GLEANINGS does not prove it is a sure cure.

Newark, N. J., Sept. 7.

[We question whether your procedure in the above case cured the disease. European foul brood is an elusive trouble which sometimes disappears during a honey-flow without any treatment whatever. Perhaps when you extracted all the honey and commenced feeding the sugar syrup you imitated a honey-flow and encouraged the bees to "clean house." Getting rid of the honey would seem to be a good thing, although enough of it would remain in the cells, probably, to transmit the disease were the conditions favorable. And there are some plans for treating European foul brood in which the honey is not taken away at all, such as the Alexander plan for instance. We are not saying that the disease in your case would have disappeared of itself, but we merely wish to make the point that it often does, so that beekeepers are sometimes deceived in supposing that some manipulation accounts for the disappearance, when in reality the bees merely clean house themselves.—ED.]



Different forms of the stand.

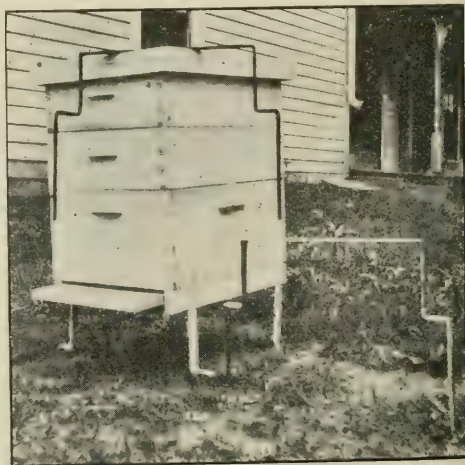
AN IRON HIVE-STAND

BY WM. RICHARDSON

I am sending you a picture of five different styles of hive stands, the last form of which I already have in use as shown in the second picture. As you can see, they are to be pushed down into the ground as far as the first projection. I do not think they would be too expensive.

Culleoka, Tenn.

[The first expense of the hive-stands would be pretty high, we are afraid; and then there would be the cost of transportation, which would be a rather big item for a large apiary especially. There would be room for the toes of the feet under the hive, which would be quite an advantage, although it would seem to us that four wooden stakes would be nearly as durable, and would be much less expensive.—ED.]



Richardson's iron hive-stand in use.

A NEW RECORD SYSTEM

How to Make Abbreviations and Signs Tell a Long Story

BY ARTHUR C. MILLER

To the making of record systems there seems to be no end; and, lest the end should be approaching, it is the writer's purpose to postpone its arrival by describing a new one.

There are three different classes of records—one for the man who is raising queens, one for the man who is increasing and building up colonies, and one for the busy honey-producer. The first is so radically apart from the other two that it should begin and remain a separate affair. Of a necessity it will differ from each system of queen-rearing and with each individual's methods.

The others, however, naturally merge one into the other, for the man making increase may be and quite likely is raising honey in the same yard, so a system should be elastic enough to cover both of these branches of apiculture.

This granted, the next question is, "What shall be recorded?" This should be answered Yankee fashion, "What is the record to be used for?" To save time. To reduce cost of operation. Then it must be simple, easy to make, and at a glance convey all the information needful in the rapid handling of colonies. At this point the need of some way of designating each colony presents itself. Numbers here as in so many other lines of human endeavor will be found to be the best. But numbers permitted to run riot are often most troublesome; so, to restrain them they must be grouped, which is another plan used in many places. As hives are not infrequently moved in some apiaries, and as such moving would cause endless confusion were the hives numbered, the stands should bear the numbers and the hive (colony) be known only by the place it occupies. This granted, the grouping of the numbers in the apiary must be considered. For the sake of clearness an apiary for 200 colonies will be used as an example. The yard is so shaped that we can have four rows of hives with fifty in a row. That makes the numbering look easier until we look for number 63, or almost any number except the ends, and those will bother unless the numbering is begun correctly. The rows must be broken up into shorter lengths, and ten makes a good and readily countable group. Furthermore, the hives may be set in pairs in each group. The numbering is beginning to take form;

but, stop a minute. The first group must have only nine hives; i. e., from 1 to 9 inclusive; the next has ten; i. e., 10 to 19 inclusive; the next has from 20 to 29, and so on. Why? Because when we look for 40 it must be in the group with the rest of the forties, not in the end of the group of the thirties, as it would be if our first group ran from 1 to 10 inclusive. This is a seemingly trivial matter; but just juggle with figures grouped in each way and see the difference. Or look at this diagram and see how readily any number may be located. (For the sake of brevity only the terminal numbers of each group are given here.)

1 - 9	10-19	20-29	30-39	40-49
50-59	60-69	70-79	80-89	90-99
100-109	110-119	120-129	130-139	140-149
150-159	160-169	170-179	180-189	190-199

No matter where one stands in the apiary, any desired number is quickly spotted. The record-book must be arranged in the same way—that is to say, each page should embrace a group of ten, the first page, however, having only nine.

Now we have reached a point where we can consider the nature and the form of the entries. Four cardinal points are to be considered, and every part of the bee culture, aside from queen-rearing, has to do with one or more of them. First: Condition of the colony as a whole. That is to say, is it a top-notcher for the time of year, or one degree less, or two degrees less? To illustrate: The top-notcher in May is a colony that is big enough for section work. The one a degree lower will do well for extracted honey, but is not quite strong enough for sections. The next-degree colonies will come up to a producing grade before the flow is over, or at once if helped from some other colony. So we can grade our colonies as 1, 2, and 3, and W, the W standing for "weak."

Later we want to know if the colony has swarmed, a swarm is expected, or is to be forced.

The second point is the queen. Who is she? How old is she? or is she missing? and if so, what is taking her place as a cell, a virgin, laying workers, or larvæ given for a queen to be raised from.

The third point has more particularly to do with increase or with building up colonies in the spring, and it is embraced in the word "brood." How many frames of

it are there? or how many are to be or have been added or taken away?

The fourth and final point is food. "Food" is more comprehensive than "stores" or "honey," for they are food. And we may have to give or take food or honey from a colony, and the food given may be honey or syrup, and honey taken may be for other colonies or surplus for ourselves.

We will arrange the four points in a group like this:

C	B
Q	F

"C" is for the condition of the colony as a whole. "Q" is for any thing relating to queens. "B" is for any thing relating to brood and bees. "F" is for any thing relating to food or crop.

If, now, we can get a set of simple signs to use in these squares, we have only to put the proper one in the proper square to tell us what it might take a dozen words to write out in long hand. And eight well known signs plus a few letters do it all. The signs are o, +, —, X, ÷, ?, >, <, √.

Nothing to learn about those, surely, unless, perhaps, the "arrow head," which is used for "to" or "from," and will be explained later. Three other items must be provided for, namely, the date, and whether a thing has been done or is to be done. If the date is properly handled it will tell the other two.

With this somewhat long preamble we come to the record system itself; and in laying it before you I wish to

say that it was not "invented," but was the slow outgrowth from countless efforts to secure the end now attained.

The following illustration is arranged to show some of the many points the record can cover.

The first column carries the colony numbers. The top of each column carries the date the record was made, i. e., colonies inspected, and the indicated condition found or the indicated work done.

	In 5	In 20	Pl 1						
20	1 -2 1911 H×M +10 Fd		#						
21	1 +10 1911 S×M Fd								
22	2 +10 1911 M C	-3	-2						
23	w +2 1911 M	Rq 1 St. +1	? ✓						
24	1 + 1911 H×M 2CS	?							
25	3 1911 H×Bk	>29	5						
26	1 + 1910 H 2E×S	? +1E×S							
27	N V	? lg							
28	20 1911 S×H	÷ > 48							
29	w +2 1911 Y	5 >							

8 In.

5 In.

A description of these records will make the operation of the system plain.

On June 5, colony No. 20 is in No. 1 condition. The queen was from stock designated as "H," mated by a drone from stock designated as "M" and raised in 1911. Two frames of brood were taken, as shown by the "2" in the "brood" square. Ten frames of foundation were given in an upper story, as shown by + 10 fd. in the "food" square. This is taking a little liberty with the use of the title "food," but it is furnishing food-storage capacity, or brood space if the queen goes up. But despite the liberty, no mistake can be made in future reference to it. If it is especially desired to differentiate between foundation or combs above an excluder and those to which the queen has access, it may be shown as at No. 21, where the characters are placed across the horizontal line between the "brood" and "food" squares. If this plan is followed, then the record at No. 20 would mean that the foundations were above an excluder.

No. 22. Here we have a "Grade 2" colony, and it was given ten combs to which the queen was allowed access.

No. 23 was weak, and was given two frames of brood. The queen was of the strain designated as "M," and as no mating is shown it is understood she is mated to a drone of the same strain.

No. 24 was of "Grade 1," and was given two comb-honey supers.

No. 25 was "Weak;" had a queen of the "H" strain mated to a black drone.

No. 26 was of "Grade 1," had a 1910 queen, and was given two extracting-supers.

No. 27, a nucleus with a virgin queen.

No. 28, a "Grade 1," but has twenty frames occupied. Not having any plus sign before the number 20, in "B-F" squares, means that the condition existed when examined.

No. 29 was weak; had a queen of a strain designated as "Y;" usually the initial of the person from whom queen or strain was purchased is used.

In the next column, under date of June 20, we find a — sign in the "food" square, and two diagonal lines through it. The — sign was put there either June 15 or some time before the apiary was visited on the 20th. It meant that combs of honey ("food") could be drawn from that colony. None were drawn, so the sign was canceled by the two diagonal marks. That is quicker than erasing.

No. 21 was not opened.

No. 22 had three frames of brood and

two of honey taken. It goes without saying, that the places were filled with combs or foundation, so no memorandum to that effect is needed.

No. 23, in the "queen" square, is marked "Rq," put there probably June 23, to show that the colony should be requeened when a queen was available. This was done on the 25th, as shown by the "I St.," meaning that a queen from "Stewart" stock was introduced. (It is the writer's practice to dequeen and requeen at the same time.)

No. 24 shows a question-mark in the "Food" square, meaning that the "Food" condition should be inspected. This was done and everything found satisfactory, as shown by the check mark "✓."

No. 25 was removed to stand 29, and the two vertical lines stop the record.

No. 26 has a question-mark in the "food" (honey) square. Inspection made and one super taken off, and an empty one put on.

No. 27, queen square has the question-mark. The queen was found to be laying, as shown by the "lg."

No. 28 was marked for division, which was done, as indicated by the >48 in connection with the ÷ sign. The 48 was the stand number to which the removed part of 28 was taken.

No. 29 had No. 25 added to it. Of course, the poor queen of No. 25 was disposed of, and it is unnecessary to say it. If both queens were left to fight it out, "a?" would be put in the "queen" square of the next column, and at the next visit the queen condition of that colony would be ascertained.

On July 1st we find but two entries in this column. No. 23 was looked at for queen condition, and the new queen was found to be all right, as shown by the check mark "✓."

No. 24. A swarm was hived here; not known where it came from, as shown by the question-mark in the "queen" square.

The next column is marked for the work to be done on the next visit.

Apparently the yard is being run largely for increase. No. 20 can have honey taken from it. No. 21 can spare both honey and brood; No. 22 the same. No. 23 should have brood added. No. 24 will probably have supers to come off. No. 25, the swarm of July 1 needs to be considered generally; hence the question-mark in the center. No. 26, supers should be examined. No. 27, both brood and honey to be added. No. 29 asks, "How does brood and food stand since the union?"

Suppose it is July 10, when the next inspection is made. If combs of brood or

food are taken or added, the number of combs so used is placed beside the minus or plus sign. When through, the date is written at the top of the column, and the record is complete.

Placing the signs in the undated column is for work to be done. Putting the date at the top of the column says it *has* been done. An omission of indicated work is fixed by canceling the indication.

Only one caution is necessary, and that has to do with the use of letters. Try to use such as can not be interpreted in two or more different ways. For example, + 2 S in the "food" square might mean two supers added, either "comb" or "extracted," or it might be read as two pounds of syrup given. Hence, the "S" must be qualified by "C" or "Ex," for the different supers, and by "lb. Sy" for pounds of syrup. These features will quickly reveal themselves, but it is better to know them first and start right.

The records are best kept on loose leaves of stiff paper or cardboard held in thin tough covers by pieces of tape or string passed through the holes. Five cards will hold the records for 99 colonies. Usually the six columns will suffice for a season's work, when honey only is worked for; but when working for increase by building up nuclei, more room is needed; and in that case records are carried forward to new cards, when the earlier sets become filled. The carrying forward is simple, however, for all one needs is the grade number in the "colony" square, the queen's record in the "queen" square, and the nature of the work to be done or feature to be inspected on the next visit; and in actual practice I find a page (ten colonies) can be transferred in about three minutes, less for honey-producing colonies, more for colonies which have been built up, because then the grade has to be estimated from the additions. Sometimes it is easier with these colonies merely to transfer the queen record and indicate the work probably needed, leaving the "grade" to be filled in the "colony" square when the colony is inspected.

The lines on the cards are printed, as printer's ink will not blur if wet, as do lines ruled on. The printing is cheap, as only parallel lines are set up, and then the cards are run through the press twice for each side, the second time the cards being run through at right angles to what they were at first. This gives the squares.

A black leadpencil is used for the records, as it will not blur if wet; and, by

using one of the right quality the records will not smut.

To give the system a trial, any one can easily make up a few sheets after the design shown, and follow the instructions, varying them, if he wishes to suit his own particular conditions or desires. It has fulfilled every need with me, and has served me no end of time, labor, and thought. I can heartily recommend it.

Providence, R. I., Aug. 12.

EXCESSIVE SWARMING IN AUGUST

BY S. A. FULLER

I have been having the time of my life for the last three weeks with my 150 colonies, for they have been swarming. On Aug. 1 I extracted and cleaned up comb-honey supers especially to make room, and they certainly had no lack of room. When the first swarm came out I opened the hive and cut out all queen-cells, put the swarm back where it came from, and put a queen-trap at the entrance. I went through all my hives and cut out queen-cells when started, and put on all the traps that I had. But they swarmed just the same. I had four large swarms go together—three from trapped hives and one from a hive having no trap. I cut cells out of one hive three times, and yet these bees swarmed twice. Three times a day for two weeks I put them back every time (I have a queen-trap on this one), and still they come. I had four swarms that were so large (several swarms together) that I had to put them in barrels.

The fall flow is on now from horsemint and goldenrod; but so much swarming will cost me the surplus. I should like to see the color of the man's hair who could keep these bees from swarming this season. Up to now my bees have done better this year than ever before.

I now believe if I had extracted Aug. 1 from the brood-nest I could have prevented this swarming; but it is too late to talk about it now. Any way, next year I shall try to avoid it. Having bees in this country in August is "something fierce."

Helena, Ark., Aug. 8.

Bees Stinging Drones of Queenless Colony

On page 540, Sept. 1, in reply to Dr. Miller's query, "Do bees sting drones?" you remark that you have never seen them do so. This fall, after the frost has killed the flowers, unite a colony that is queenless, and has lots of drones, with a colony that has a queen, and observe the bees stinging the drones by the hundred. This is the only condition under which I have seen them sting drones; but I have seen this many times.

Sept. 1.

PAUL SCHEURING.

Heads of Grain from Different Fields

Beginner's Questions

1. Must there be two queens to swarm?
2. How may honey be extracted from frames? I have only a few colonies and do not want to buy an extractor.
3. Do bees breed all the year?
4. How many frames of honey should be left in a good strong hive for wintering?
5. How often should one inspect his hive to see if all is going well?
6. If the comb in frames is old, should it be cut out and let them build fresh comb? What is the best time to do this? How often should it be done?
7. What will the bees do when all the frames and supers are full?
8. This year I bought a hive with bees in it; and when it arrived the supers were in a box with some bag cloth over one end. What is this for?
9. What months are the best for honey?

Philadelphia, Pa., July 1. J. SWEENEY.

[1. When a prime swarm—that is, the first swarm of a normal colony in a season, issues, it is accompanied by the old queen, and there is left for the parent colony, so called, ripe queen-cells from which will come a virgin which, after being mated, will become the mother of the colony.

2. It is difficult to extract honey from frames without a honey-extractor. You can shave the cappings off, place the comb in a horizontal position in a warm room, and drain the honey out, turning first one side and then the other to the screen on which the comb rests, but this is a slow process, and you can not get all the honey out.

3. In some localities there is more or less brood-rearing going on nearly the whole year; but in your locality the queen slows up on egg-laying after the main honey-flow is over, and, by early fall, has almost or entirely ceased. At such times she may be stimulated to further egg-laying by stimulative feeding, so as to make sure of a good force of young bees to go into winter quarters. Colonies wintered in a cellar are unlikely to begin brood-rearing along in the spring, while those wintered outdoors in your locality probably would not begin before March.

4. There is no definite number of frames of honey that should be left for a colony during the winter, for it depends upon the strength of the colony and also upon the place where the colony is wintered as to how much honey is needed. For a colony wintered in a packed hive outdoors, from 20 to 25 pounds should be left in the hive, and this means that there should be some honey in the upper part of the combs with considerably more in the outside combs on each side. Perhaps three inches of honey in the upper parts of the central combs would be sufficient, provided the two outside combs on each side were nearly full.

5. Do not open a hive oftener than is necessary; that is, do not open unless you have reason to think something is wrong or needs your attention.

6. If the comb is straight and good, with but very few drone-cells, there is no particular need of renewing it unless there is danger of disease lurking in it. The fact that it is old and black makes no particular difference, for this color always comes after a few generations of brood have been reared.

7. If all the available space for storing honey in the brood-chamber and super is taken up, the bees will probably hang out on the front of the hive, and will very likely cast a swarm a little later. Such a condition of affairs is conducive to swarming. It is needless to say that such a state of affairs should be prevented.

8. We can not say what this box covered with burlap is used for. Very likely it is merely a receptacle to keep the bees away from the supers. If it is a shallow box, it may be the chaff tray for use in winter.

9. If you mean what months are the best for the secretion of nectar, we will say that this will depend considerably upon your individual locality. If you depend mainly on white clover, we will say that in the latter part of June you will get your main honey-flow. If you have other honey-producing plants coming later, such as buckwheat, gol-

denrod, aster, etc., then these will come in their own seasons. The best way to find out particulars in this respect is to inquire of some old beekeeper living near you.—ED.]

Building a Support for Packing Over a Row of Hives

When getting ready to pack my bees for winter I build a board wall about three feet high, then place my hives on their summer stands in front of this wall side by side, leaving about four inches of space between the back of the hives and wall, and place the hives as close as they will stand and yet have room to work packing between them. I then use a ten-inch board to make a shelter in front, securing it near the top of the homestead, giving a slope sufficient to run the water off; and from this board I build up high enough so that, when the roof is on, it will slope back.

In placing the bees I leave the super on, and use a burlap or something of that kind to cover the bees; but under this I place two or three small corn-cobs across the frames half an inch apart. This gives the bees free access to all the stores. I fill the supers with oat chaff, put on the cover, and then fill the space back of and between, and in front and above, with autumn leaves well packed in, and then put on the roof. Now they stand facing the east, all well protected except in front of the homestead, and that sheltered with a ten-inch board.

I fill the space under this board with straw well packed in. This gives ventilation, keeps out the snow, and is easily removed at any time when the mercury runs up to 45; and the straw scattered out in front of them makes a good alighting-place. When spring comes it is safe to leave them in their winter quarters until severe weather is over.

I have tried wintering in the cellar, but do not have as good success as with the above plan. Milo, Iowa. B. A. MANLEY.

Bees of a Laying-worker Colony Desert Their Own Combs for Combs Having a Laying Queen

With reference to your reply to F. B. Fenner, Aug. 15, p. 523, I should like to relate my experience with "laying workers." I had two strong colonies with laying workers. After trying unsuccessfully three times to introduce queens I took a laying queen with two of her own frames of brood and bees, and placed her in an empty body (filling up the extra space with empty combs); then I put this body with the frames over one of the colonies of laying workers, using an empty body between the laying workers and the new queen. It was not long before the laying-worker colony deserted the combs and joined forces with the new queen. This experiment proved successful in case of both colonies. It is possible that a queen-cell would do instead of the laying queen; but I can not vouch for it, as I have not had a colony of laying workers to experiment with since the two mentioned above.

Calabasas, Cal., Sept. 3. JAMES K. HEDSTROM.

Brood that Hatched in Spite of Having Been Under Water

I have noticed some reference lately to the amount of cold that brood will stand without chilling. I had some experience this summer along that line that indicates to me that it will stand considerable.

On the night of July 21 a big thunderstorm passed over here, and it rained heavily—so heavily that the irrigation ditch overflowed. Our bees happened to be so located that about 20 colonies became flooded, a number of them being under water nearly to the top of the brood-frames. As there were supers on most of the hives the bees managed to keep above water. However, the strange part of it is, this brood that must have been several hours under water did not get chilled, for I found only a very few larvae carried out. Most of the brood was capped, and it hatched all right. One colony that was nearly submerged has made

four supers of honey since, which it could hardly have done had it lost all of its brood at the beginning of the honey-flow. It was in a Danzen-laker hive, and the brood was practically all covered. It was about 7:30 in the morning when I discovered that they were under water. I carried them out and cleared out the water as best I could. I fully expected that all of the submerged brood would die, and was happily surprised on later examination to find it all good. I did not think to take the temperature of the water that morning, but did on the following morning, when I think it was about the same. It then stood at 56 degrees F. The ditch had ceased overflowing when I discovered the calamity; and as the storm-rassed over just before midnight I am certain the lower part of the brood, at least, must have been under water for some time.

Ogden, Utah, Sept. 2. JOSEPH H. PETERSON.

Getting Rid of Laying Workers with a Bee-escape

It is not difficult to cure a colony of laying workers if they are taken soon after they have begun their work—that is, within four or five days after the first eggs have appeared. If a couple of frames of young brood, with the adhering bees, are given, queen-cells will almost invariably be started. It is well not to allow these to hatch, for the queen will almost certainly be inferior, so they may be replaced after two or three days by a ripe cell. A queen will often be accepted at this stage, but I have found introduction risky.

But when the laying workers have been allowed to go for ten days or more, so that the combs are filled with drone brood in all sorts of scattering stages, a cure may be said to be impossible, so far as making the colony of any use within a reasonable time. Under these circumstances the bees will seldom accept a queen if offered in any usual way, and the combs are too full of worthless brood any way to allow a queen to lay.

The result of a good many experiments in the past two years has led me to fix on the following plan, which has never yet failed me. A two-frame nucleus is made from a normal colony, and a queen introduced, or a very weak colony may be used instead of this nucleus, if there is one which needs strengthening. The laying-worker colony is set on a bee-escape board over the nucleus. That is all. In the course of four or five days, four-fifths of the abnormal bees will have gone down, one by one, and will have united themselves quietly with the nucleus. The few bees left above I have always fancied to be the laying workers themselves; but they do no harm if knocked out on the grass. The sealed drone brood is then uncapped, and left to chill over right. It may then be given back to the bees, which will clean out the dead larvae.

Stouffville, Ontario, Can.

F. L. POLLOCK.

A Burlap Awning in front of the Hive as a Shelter from the Sun or Snow

My method for a few years past has been to fill the super with good absorbents, such as sawdust, leaves, or excelsior, and to wrap the hive with heavy building paper well tacked on frame top to bottom, leaving the full entrance open. For a shield from snow or wind, I tack burlap along the top of the front of the hive, letting it drop over the entrance. In case of a single-walled hive, more paper can be put on and fastened with thin slats.

When the sun shines on the front of the hive, it shields the light from the bees. When warm enough for them to fly I throw the sack on top of the hive and drop it down as needed. I find it the best front protection, in my experience of fifty-two years in handling bees.

Conesus, N. Y.

D. W. TRESKOTT.

Living up to Their Name

In buying old lumber last winter I came into possession of a beer sign which I sawed and made into a hive with the big letters on the outside of the hive. Never have I had bees work as busily as this colony; for when they were put into this hive on the first day of June they had neither comb nor foundation. I was about to advise others to use saloon and beer signs for hives, when, hap-

pening to look into the brood-nest, it was plain that these bees had been doing crooked work from the very first. The combs were all crosswise and cornerwise. Would it be well to use brimstone at once, or will they do straight work another year if foundation is put into a new hive, and the beer sign removed?

Chelan Falls, Wash. Sept. 11. C. B. JACKSON.

[We would advise you to give the bees another chance. May be they will reform if you start them right once more next spring.—ED.]

A Good Record Made by an Eighty-year-old Bee-keeper

When I started this spring I had thirty-six colonies of bees. As soon as they began to have three or four combs of brood I began dividing them, making increase following Mr. Doolittle's plan as well as schemes of others, and also drawing on my own fifty years of experience.

I extracted over ten barrels of honey, and besides this I have about 1000 lbs. of comb honey in plain sections. I did all of our work myself in spite of the fact that I was eighty years old the second of May. I am very busy now getting it ready for market. We have a very good home market here, and I think I will sell it all in jelly-glasses and Mason jars.

Newcastle, Neb.

A. C. BUTLER.

What a Three-frame Nucleus did on a Peninsula 1½ Miles Wide

The first of last June I purchased a three-frame nucleus and an observation hive. The bees entered the super on the first of August, and up to the present time I have obtained 56 pounds of comb honey. Besides this I should judge that there are from thirty to forty pounds of honey in the brood-chamber, and the little chaps are still hard at work. It seems to me that this is a good showing. There is very little farming here—no buckwheat or basswood, and we are on a peninsula not over 1½ miles wide.

Wood's Hole, Mass., Sept. 20. W. K. BUTLER.

Feeding in Cold Weather

Have any of your correspondents ever tried feeding in midwinter? Last winter I fed small quantities of syrup in January, February, and March, when the ground was covered with snow, and when the temperature was far below freezing. I never before had bees come out in as good shape in the spring. One colony stored about 15 pounds of honey from fruit bloom. I did not lose over 500 bees all together by flying out and freezing.

Kansas City, Kans.

D. D. DOWNING.

[If syrup is fed hot right over the cluster, the bees can take it in cold weather. Sometimes, if the weather warms up a little they can take cold syrup. But in either case, feeding syrup in cold weather is of doubtful value, since it tends to excite the bees, causing them to expand the cluster unduly, etc. We should say that your experience is the exception that proves the rule.—ED.]

Bee Demonstration to Swell the Membership of an Association

The farmers of upper Bucks County, Pennsylvania, held a two-days' picnic on the 6th and 7th of September. On those two days I made demonstrations of modern methods of beekeeping, using a wire cage, and this feature proved both profitable and entertaining, for several hundred people surrounded the cage whenever I entered it. The demonstrations stimulated beekeeping, and they were the means of bringing a number of new members into the Bucks County Association.

Richlandtown, Pa.

S. T. CLAY.

An Escape-board for Uniting Colonies

Aug. 1, p. 491, mention is made of the paper method of uniting bees. This is my plan: After taking the escape from an escape-board I place the board over one colony of bees and pour upon it half a pint of honey or thick syrup. Then I set the other hive on top.

Bellefontaine, Ohio.

CLYDE CORDREY.

Our Homes

A. I. ROOT

Be not unequally yoked together.—II. COR. 6:14.
Your adversary the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5:8.

Come unto me, all ye that labor and are heavy laden, and I will give you rest. Take my yoke upon you, and learn of me; for I am meek and lowly in heart; and ye shall find rest unto your souls. For my yoke is easy and my burden is light.—MATT. 11:28-30.

A BEEKEEPER IN TROUBLE.

The following letter somewhat explains itself:

Mr. A. I. Root:—I am in great trouble, and in jail on account of not being able to pay alimony to my divorced wife. This is an attempt to take my pension money away from me. I have had 12 dollars a month up till a few days ago, when it was increased to 30 dollars a month. They took ten dollars a month out of the twelve dollars for some time, till I had to sell my horse and cow to keep my two little boys and myself, and I am about \$500 in debt. I send you book and paper under other two covers, which will give you an outline of the case.

Sept. 10.

J. E. C.

The book sent me, referred to in the above, is about the size of GLEANINGS, and contains 59 pages. These 59 pages contain full details that need not and should not have been allowed to get into print at all, as they refer only to neighborhood quarrels between relatives and neighbors. Why in the world our good friend should have ever gone to the trouble of putting such matters in *print* is more than I can explain. Notwithstanding his statement that he is a poor man, and has had to sell his horse and cows, and part with his two little boys, in a letter in a local paper which he sends, he says he is working hard to get money enough to buy a gas-engine to run his extractor. He says his right arm is partly paralyzed by turning the extractor to extract so much honey. Now, my opinion is that turning the extractor has had but little to do with it. His nervous condition from dwelling so much on his quarrels with his wife and neighbors has brought on paralysis, and no wonder. Let me quote briefly from the first page of this book:

AN EXPOSE; A TRUTHFUL STATEMENT OF MY ACOQUAINTANCE, MARRIAGE, AND DIVORCE FROM
MAY E. SMITH.

In the spring and early summer of 1892 Miss May E. Smith came to my place repeatedly after a quart of honey vinegar. She had called herself Miss Chase to me; and, in fact, I did not learn her true name until, speaking to a schoolmate of hers and calling her Miss Chase, he said to me, "Her name is not Chase, her name is Smith." Yet I thought for some time after that she was Mrs. Chase's daughter by a former marriage. Certainly she had lived in Medford over four years when this took place, but my attention had never been called to her. I took her to be about fourteen years of age in the short dresses she wore.

I can tell you I was considerably surprised when she told me she was twenty years old.

I was forty-eight years old at that time, and was not interested in any girl so young, only to

treat them respectfully. But there was a persistency in her attentions and treatment of myself that would have taken an indomitable "I will not" to counteract, and thus I was led, forced, against my own best judgment into a marriage with this too young person, by and with the help of Mrs. W. S. Chase, a lady for whom I had the greatest respect at that time. I want to say right here that this marriage was the mistake of my life. I have my faults, as we all do. I am afraid of the person that has no faults; but can we not cut them out, nor make them grow less. I can stand a lot; my shoulders are broad; but surely my punishment for this marriage is too grievous. They have kidnapped my children, my pets, my darlings, my babies, out of the nice little home which I had provided for them, and left me bereft of my jewels in my old age, and this is a crime for filthy lucre, and nothing else, or why did they resort to perjury and fraud to accomplish this vile scheme! Three sisters perjured themselves—Amanda Smith Cady testifying that I drew a big revolver on her and her father. This is false.

A man 48 years old was unwise enough to get married to a little girl wearing short dresses. She claimed to be 20, but Mr. C. thinks she was only about 14. Of course it was a big blunder to contract such a marriage in the first place. But after it was all "said and done," and especially after there were some *children* given them, friend C. needed the grace of God in his heart if anybody *ever* did. A genuine Christian man—one who is full of the patience and forbearance of the Lord Jesus Christ, would get along with a wife, even in her teens, and the divorcee he speaks of, I feel sure, was entirely wrong and out of place.

Dropping for the present the case before us, let us consider a little this matter of old men marrying young girls. I need not make particular mention of the millionaires who have quite recently divorced the wives of their early manhood, in order to marry a young girl—generally an actress. In fact, I have feared there are giddy and unscrupulous young girls who set about a course of training in order to capture or captivate some old man who happened to be rich; and I have watched as well as I could the results of such marriages. The young girl not only soon gets sick of her bargain, but the foolish (and, I might almost say, the idiotic) old man in a like manner would be exceedingly glad to get back to his first wife—the faithful companion, perhaps, for forty years or more, if it could be done. The divorced wife frequently had nearly or quite as much to do in accumulating the riches as the millionaire himself; and yet after the divorcee she is put off with a mere pittance. Let me suggest to you John Jacob Astor, who recently died in the Titanic. In his will the faithful old wife was comparatively unrecognized,

while the young actress succeeded in scooping in several millions; and now there is a jangle about the millions that are to go to the baby only a few weeks old. If this thing is allowed to go on—this thing of letting a man go scot free or letting him trample the most holy and sacred laws (of both God and man) under foot, *because* he is a millionaire—we shall have something *worse* than “race suicide.”

Now, our beekeeping friend is by no means a millionaire; and this kind of sin is by no means confined to millionaires. How many times do we see old men acting silly around young girls—perhaps girls in short dresses! And, by the way, the short dresses of late do not seem to be confined entirely to girls in their teens, as used to be the custom and fashion. May God help us, or may he help us who claim to belong to the Lord Jesus Christ, to do all we can to put a brake on the work of that “roaring lion” who is just now particularly active in going about “seeking whom he may devour.” I suppose that, in every community, there are more or less old men, both married and unmarried, who act silly around young girls—especially if these young girls are full of life and attired in modern styles.

I am now going to come *still nearer* home. May God help me, the author of these Home papers, to beware how I take more notice of the bright young girls who are flitting around me like butterflies, than I do of the young boys who are just as nice and just as bright. Some time ago I made the remark that I really enjoyed being near the entrance of our factory (just before the whistle blows) and looking into the bright faces of our employees, and saying “good morning” to each and every one. I think I happened to remark that I especially liked to catch the eyes of the bright young boys as they come to their work exactly on time. While I was speaking, somebody in the crowd—I do not know but it was one of my daughters-in-law—looked up mischievously and asked me if I did not *particularly* enjoy saying “good morning” to the good-looking and nicely dressed young girls who work in the honey-room, the various offices, and in the packing-rooms of our establishment. There was a big laugh all around at this sally; and when I came to look into my own heart I confess I felt a little guilty. May God in his great mercy help me to keep even more closely in that straight and narrow way, and to look on all mankind even as did the dear Savior when he said, “He that doeth the will of

my Father, the same is my brother and my sister and my mother.”

Now, the old *men* are not altogether to blame in this matter. There are middle-aged and even elderly women who act foolishly around young boys. Years ago one of the first converts it was my privilege to lead to the Lord Jesus Christ made an abrupt change in his life. He deliberately *did* come “out of darkness” and get into the broad daylight of the gospel, and into a full trust in God’s promises. Christian people right and left extended to him a helping hand and bade him Godspeed in the new way. Among them was a woman prominent in Christian work. She took so *much* notice of him, and made so much of him, that I began to protest. I feared the boy might be spoiled by her overdoing. She excused herself by saying, “Why, Mr. Root, I am old enough to be his mother, and I am only taking a ‘motherly’ interest in him.” Her good husband was a beautiful example of Christian manhood. He, too, took an interest in the boy who had dropped his tobacco, profanity, strong drink, evil companions, and every thing else, and was a real friend to the boy. I cautioned the *boy* as well as her who wanted to be a “mother” to him. Finally the young man came to me and told me his troubles. This motherly woman had —. Then my young friend said something like this:

“Mr. Root, if there ever was a good man it is this woman’s husband; and I would rather die than harm him or his domestic relations by thought or deed. It will not *do* for me to be where I shall see this woman any longer or have any thing to do with her.”

May God be praised, this young man, by my advice, heeded that part of the Lord’s prayer where it says, “Lead us not into temptation, but deliver us from evil.” It is right and proper that elderly people should notice the boys and girls, lend them a helping hand, and watch over them in a fatherly and a motherly way; but whenever you are tempted to go further than that, remember the caution from your old friend in this Home paper.

Our beekeeping friend suggests that there was “a persistency in her attentions and treatment.” Now, girls of fourteen or fifteen often jest with, and banter elderly people with whom they are well acquainted, without a thought of any thing wrong.*

* A very good friend of mine, years ago, took me “Down East” to his old paternal home. He was very anxious that I should become acquainted with his father and mother and a younger sister. This sister was particularly bright and full of

I have more fear of the designing mothers back of the young girls than I have of young girls fourteen or fifteen. We should each and all of us, especially we men folks, pray constantly for grace and strength and wisdom to treat all young girls, wherever we see them, exactly as we would have all men treat our own daughters. This is sometimes a hard thing to do, I know, especially if all men are created much after the same pattern as myself. But you know the promise in God's word, "My grace is sufficient for you," and, again, "He will not suffer you to be tempted above what ye are able to bear."

Now comes in one more thought, and it is a most important matter. Old men and perhaps young men are in this present day and age, many of them, employing bright young girls as stenographers; and oftentimes these stenographers are shut up with the employer in his office away up many stories high. *I would not have it.* May be you will think I am old-fashioned and over cautious, but I *know* whereof I speak. Granting, if you choose, that there are hundreds and thousands of good girls earning their bread in this way, the fact still remains they are making a precedent and at the same time setting a bad example. A nephew of mine is a skillful physician. When girls go to his office for counsel he tells them that they must bring their mothers along; or if that is not convenient his good wife is called into the room, and she remains there until whatever must be said and done is ended; and may God be praised that I *do* know of *one* such family doctor. Now let us have society so framed that it will be generally understood that it is not exactly the thing for a man and woman who are not related to each other to be kept much together. As a rule I deprecate gossip; but my good pastor, Rev. A. T. Reed, years ago, said that, when things of this kind are going on, people *ought* to talk, and he said he was often glad that they *did*.

Not very long ago a banker with whom I am acquainted was talking about getting

life. My friend took particular pains to have us two become acquainted. During my stay of two or three days we became so *well* acquainted that my friend suggested to his sister something like this:

"Sister, I trust you will not forget that Mr. Root is a married man while he and you seem to be having such a good time together."

I shall always remember her quick repartee—"Dear me! do you think I would carry on in this way with anybody who was *not* a married man!"

Her philosophy (and I think it was reasonably sound) was like this: Every man who has a wife (and especially if he has a baby too) at home, is expected to be *manly* in the best sense of the word, no matter *where* he is nor what the *circumstances* may be. "Blessed are the pure in heart, for they shall see God."

a divorce from his wife, or, rather, she was going to get the divorce—it does not matter particularly. The reason was the employment of a lady book-keeper. The wife wanted this woman dismissed. But the banker said that would mean ruin to his business to dismiss that faithful and competent woman. In discussing the matter with a Congregational minister of that town, this minister declared that this wife was unreasonable. But I said, "No, *no*, *no*! Let the banking business be ruined or even wrecked; but do not wreck or ruin the sacred relation between this man and wife." Some of you may suggest that sometimes women are unreasonably jealous. There may be a few of that kind, but I do not believe it occurs very often. I do remember one case where a man was jealous of his wife where there was not a shadow of reason for it; but this man was very soon after pronounced *hopelessly insane*.

I like to see warm and intimate friendships, and I like to see friendship between the young and old; but I always feel worried and troubled when *too intimate* friendships exist between old men and young girls. Beekeeping and poultry-keeping, greenhouses, gardening, flowers, high-pressure gardening, the study of botany, microscopy, and even astronomy, often bring together intimate relations between people in various parts of life. If some bright young woman is skillful with chickens, and you enjoy paying her frequent visits, go right ahead; but take your *wife* along, even if said wife does not care much for the chickens. If you have no wife, get one; and if this expert poultry-woman has no husband, get *her* by all means; and if you can not get her, do a good job in trying; and after you have once gotten her (so you can call her *your own*), so live that all men may know you are remembering that solemn vow you took: "What God hath joined together, let not man put asunder."

I have spoken of young girls full of health and buoyancy of spirits who oftentimes innocently attract the attention not only of old men but men of all ages. Now, when these girls need a guiding hand from the father as well as from the mother, what do you think of the wretch in human form who deliberately waylays these children (for that is what they are), and brings them down to ruin? The dear Savior contemplated this, I think, when he said, "It were better for such a man that a millstone were hung about his neck, and he were cast into the depths of the sea."

Just recently I have been pained to note by the daily papers that the city of Cleveland has been, during the past summer, inaugurating what they call "three-cent dance-halls." These dance-halls purport to be for the purpose of giving the children outdoor exercise; and I have been waiting and wondering why some of the Christian men and women of the different churches of that great city did not come out with a vehement protest, especially when the authorities are proposing to open even a greater number of three-cent dance-halls. The following clipping from the Cleveland Press would indicate that there are asylums or institutions of some kind in Cleveland to take care of these unfortunate results from the dance-halls:

"It is plainly the mother's duty to acquaint her child with the important facts of life. But the majority of mothers are obviously failing," said Mrs. Clark. "We have from twenty to thirty girls here constantly.

"They come from some of the best homes in the cities, and some of our so-called 'finest young men' are responsible. They come here almost invariably by way of the public dance hall and amusement parks.

"Just now we are caring for the results of last winter's dances in the public halls. After the first of the year those girls who this summer have frequented the parks to their own grief, will come to us. What does it all mean?

"Primarily that their mothers failed to do their duty when they failed to tell them the things they should know.

"If each girl were closely questioned I doubt if we could find three of them who had been told the truth. I base that estimate on the fact that so many of them range from thirteen to seventeen years. One child of thirteen gave birth to a baby girl here this morning. Her mother, heartbroken with grief, admitted to me that it had been her own fault.

"Since the majority of parents either can not or will not instruct their children, I think it is flatly up to the state, through the schools, to supply that instruction."

Let me add to the above clipping that I fear our reform institutions will accomplish but little in the way of cure while every great city forgets all about prevention, and keeps on opening up more three-cent dances.

When friend C. first sent me the letter at the head of this Home paper I wrote him as follows:

My good friend, I have looked over your book quite a little, but really can not take time to read all of it. It seems to be an account of neighborhood quarrels and family quarrels that nobody in the world except your immediate community is interested in. I think you did a very foolish thing in putting so much gossip in print; and if you will excuse plain talking I am sure you must be at least somewhat to blame. I never knew of a neighborhood where there were not more good people than bad, and where the general public are not always ready to give a poor man a chance. Neither in your letter nor in your book do you intimate that you have been holding fast to God's promises. I will quote just this one: "Blessed are ye when men shall revile you, and persecute you, and shall say all manner of evil against you falsely, for my sake."

Now, if you are trying to do right, and ask God to help you every day of your life, I don't see how you can have any such trouble. Get down on your knees, and ask God to forgive you

for what you have done wrong: then ask him to guide your erring footsteps. Remember also the promise: "My yoke is easy and my burden is light." "Come unto me, all ye that are weary and are heavy laden, and I will give you rest." If you will do this I am sure you will not only be at peace with your neighbors but with the good wife, the mother of your children. I wish you would show her this letter. If you are both beekeepers, I suppose you have been reading my Home talks in GLEANINGS. I have prayed for you both, and I will pray for you again.

Your old friend,

Sept. 13, 1912.

A. I. Root.

Well, in due time I received the following reply:

Mr. Root:—I am ashamed to have such a letter in my possession as you wrote me. Certainly it is plain that you did not read my book. Do you think I would place that letter in this woman's hands? She would clap her hands and screech with delight at my inability to protect myself from her. Surely she would not have to pervert that letter to her liking.

In regard to myself, first I am persecuted because I am a beekeeper; next, because I was friendly to sweet clover; then, last but not least, because opposed to strong drink being shipped into our no-license village, and kept in a blind piggery where several claimed the right to store their liquor, then come together, to drink it; then have the brewery team come from F. every few days and deliver beer in bottles and kegs at this "piggery," and also at their private houses in broad daylight. You should remember that I received 250 copies of "A Stainless Flag," by Dr. Chapman, which I faithfully distributed in F. and the towns of O. and M., and that O. came within eight votes of going dry; and I believe that, if I had had the 300 copies that the box would have held (50 copies more, in place of refuse paper), O. would have gone dry.

This (for reasons best known to myself) I left out of the book. This woman's father was a notorious drinking man. Liquor and crime go hand in hand; thus this crime comes against me. I took GLEANINGS for your writings and nothing else; yet I look it over a little, more for sweet clover and alfalfa than any thing else. I have four acres of sweet clover and 3½ acres of alfalfa. I am no hypocrite, so say little about religion. I would be a poor person to speak in church, yet I have sung in choirs for many years, and I thoroughly believe what I sing. Do you think that I could sing otherwise? This woman never looked in GLEANINGS that I knew of, nor a Bible either.

I wish I could get three or four copies of "The Truth About Sweet Clover." I think I have two or three copies of "A Stainless Flag" yet at home, which I should like to get into this jail. Oh the terror of strong drink! There is a man in this jail who killed a babe less than a day old—a Bohemian. His wife comes about twice a week to see him. He is a prosperous farmer, worth \$50,000; and now he is sober, they both nearly die over the matter.

Yours respectfully, ———.

Jail, Sept. 24, 1912.

I have given the above letter entire because it illustrates the sad condition of one who has become entangled in a family quarrel, and finally in a quarrel with neighbors also. It would look at first glance as if the writer had been persecuted for righteousness' sake; but come to look into the matter carefully it hardly seems likely that people should all be against him because he is a beekeeper or because he is friendly to sweet clover, and certainly not because he is a temperance worker and one who is faithful and earnest in distributing temperance literature. He says he took GLEANINGS for my writings and

nothing else, and yet in a former letter he speaks of having partial paralysis from turning his honey-extractor so much. If he is so much of a beekeeper as that, he certainly ought to be interested in that part of the journal devoted to bee culture. His statement that he sang in the choir for many years indicates what we already know, that those who sing in our churches do not *always* belong to the Lord Jesus

Christ; and it is also true that we have some most earnest and faithful temperance workers who devoutly hate the liquor-traffic but do not stand up before the world as followers of the Lamb of God that taketh away the sin of the world.

If any of our readers should feel like lending a helping hand to our poor persecuted brother, his full address will be furnished on application.

Poultry Department

FORECASTING THE LAYING HENS, ETC.

I have searched in forty or fifty poultry journals to see how much attention has been paid to friend Leonard's discovery that most laying hens lay their eggs a little later, more or less, every day. But little or no attention so far has been paid to the matter. That handsome journal called *Poultry* mentions a great layer that was in the habit of doing this when she was ready to take a little rest, in her wonderful stunts of an egg every day. See the following:

The best individual record is that made by Lady Showyou, White Plymouth Rock hen, No. 717. This record for each month is as follows:

November, 17 eggs; December, 22; January, 5; February, 17; March, 20; April, 29; May, 31; June, 29; July, 29; total, 208.

She has 92 days yet left in which to complete her year's record. The only month this hen has failed to lay an unusually large number of eggs was in January. We had a snow about January 5 which was nearly two feet deep, and the temperature went to about 24 below zero. Lady Showyou laid an egg the day following, and then quit business until about the 5th of February, taking just a month's lay-off. She then began a rather remarkable period of production in the days following this, laying 146 eggs in 151 consecutive days. She is the most industrious hen among the 655 in the contest. She goes immediately from the roost about daylight each day into her trap nest. She lays the egg, and is released from the nest about eight o'clock in the morning. She then spends the remainder of the day in eating a large amount of food and drinking lots of water, out of which to manufacture eggs for future days. We can usually tell about when she is going to miss a day. As this time approaches, she lays a little later each day; that is, if she is to miss soon, we do not find her in the nest as early as usual. She will go on at 10 o'clock; the next day at 1 o'clock; and the day before she misses, we do not find her on the nest until about four o'clock in the afternoon. When we find her on as late as this she then misses the following day; but the next day she has laid by 8 o'clock, and keeps it up at that hour until time to miss again. She has missed laying only five days in the past five months, and this has been true of her in each case when she missed a day.

Surely those who are trapnesting poultry at our experiment stations have had ample opportunity to learn *how many* hens lay eggs after this fashion. So far the answer seems to be that a few good layers lay in that way. Perhaps a greater number *occasionally* lay a little later each day until they finally skip a day. When

a hen is insufficiently nourished to produce an egg once in 24 hours we might naturally expect she would take a little longer period, and, as a result, finally drop an egg from the roost in the night, or wait until next morning, thus skipping a day entirely.

SURPLUS ROOSTERS; THEY ARE COSTING OUR COUNTRY 50 MILLIONS OF DOLLARS ANNUALLY.

The above is rather astonishing, is it not? But the statement comes from the State Board of Agriculture of Pennsylvania. Read the following, which I clip from one of our poultry journals:

W. Theodore Whitman, of Allentown, poultry lecturer for the State Board of Agriculture, and superintendent of the Allentown fair poultry show, in a recent issue of the *Philadelphia Press* states that he has started an earnest crusade for the production of infertile eggs for table use as a source of economy and greater healthfulness. So ardent does Mr. Whitman feel on this subject that he declares that eventually the legislature of the various States as well as Congress will enact laws on this question. Mr. Whitman declares that the fertilizing of eggs is the chief source of rots and spots, and that it is a fallacy that hens will lay better eggs if roosters are allowed to run with the flock. Roosters, he says, should be killed off, with the exception of the few best specimens that are needed for breeding, and even they should be kept penned up outside of the mating season. He said:

"It has been proved by investigations and tests at agricultural colleges that the hen does not need the rooster. She is better off without him at a time when she should be doing the work of making profit for the farmers by laying eggs which he can sell.

"If the farmers of this country would keep the hens away from the roosters at all times except during the mating season this country would be saved fully \$50,000,000 a year. By this I mean that eggs valued at this amount are spoiled every year. They could have been saved if they had been infertile."

From what experience I have had, I am satisfied that the above is correct in the main, although I should have never placed the figures so high. All that it is necessary to do to avoid this great waste is for the farmer or any other keeper to pick out his best hens and place them with his best roosters only *when he wants eggs for hatching*, meanwhile either disposing of the roosters he does not wish to breed from or pen them up by themselves. I believe it has been settled by numerous experiments

that hens, especially pullets, lay *better* when they are not worried by the males—especially the surplus males. Shall we not all of us “sit up and take notice.”

MUSTARD FOR MAKING HENS LAY; THE ORIGINAL “STRIKEBREAKER.”

So many inquiries have come to me in regard to the use of mustard, that I clip the following from the *Petaluma Weekly Poultry Journal*:

“STRIKEBREAKER” FORMULA.

For the benefit of new readers of the *Journal* we here reprint the “Strikebreaker” formula given some time ago by Mr. Keyser, and referred to by

him in his article this week. It is as follows: Blood meal, five pounds; bone meal, five pounds; yellow-mustard bran, ten pounds; saltpeter, one pound; sulphur, one pound; Venetian red, two pounds. To be fed heaping tablespoonful to twenty-five hens once a day in wet or dry mash.

Of course, the blood meal is a good thing for chickens of all ages; and so is the yellow-mustard bran; and may be saltpeter is also—I can not tell about that. Sulphur is probably a good tonic, and Venetian red, which is a salt of iron, may be all right. You will have to decide the matter yourself. As good results have come from the mixture as given above, it may be all right.

Temperance

Woe unto him that giveth his neighbor drink, that putteth thy bottle to him, and makest him drunken also.—HAB. 2:15.

Suppose I should paraphrase the above by saying, “Woe unto the United States of America if it continues to use its influence and machinery against our nation by ‘putting the bottle to the lips’ of our people, especially the boys and girls of this land.” And we might add, “Woe unto the United States of America if it persists and continues in putting the bottle to the lips of a people who have combined together to make their locality ‘dry territory.’” And still once more let me say, “Woe unto the people of the United States if they continue to put the bottle to the lips of those of foreign lands by sending shiploads of beer on the very vessel that carries less than half a dozen missionaries.” Some liquor speaker who was recently defending the liquor traffic referred to ancient Greece. He said they were the most scientific and progressive people in the world in their time; and he added that they drank wine and other liquors, and drank them freely. Somebody in the audience “turned the table” by asking the question why ancient Greece at the present time is a mass of desolate ruins instead of being the center of science, civilization, etc. Just after friend Doolittle’s protest in our issue for Oct. 1 came out, the following from the *Christian Endeavor World* appeared. Read it:

All the party platforms are silent on this vital question (except, of course, the Prohibition platform) though they deal with a great variety of topics, and enter into the elaborate discussion of all other great social and economic reforms.

The writer of this editorial has never voted the Prohibition ticket in his life, but he is growing very tired of the persistent ignoring of the saloon question by the parties of numerical preponderance. Why is it necessary to ignore other questions in order to speak out manfully on this question? All parties advocate the initiative and referendum; why should not all parties advocate a Constitutional amendment forbidding the shipment of liquor into prohibition States? It is not necessary to leave one’s

party to vote in favor of presidential primaries, for all parties favor the reform; why should it be necessary to leave one’s party in order to bring about local authority over the saloon question? Are the leaders of the great parties aware of the predicament in which they are placing the conscientious voters in their ranks? By their insistence that the saloon is not a political issue they are doing their best to make it the overshadowing political issue of the times.

Perhaps I might mention right here, what you all know, that we are finally to have a parcels post, or at least a partial parcels post, and we should be thankful for so much. How did it come about, when these politicians and a lot of our big men were strongly against it? How did it come about that the express companies finally find themselves helpless? It came about because common people like you and me waged war against the flagrant injustice of our postal laws of the past. Well, when our people and our periodicals like the *Christian Endeavor World*, with its vast following, come out openly and declare against the shipment of liquor into prohibition States, something is going to be done. For some time back I have been saying repeatedly, in substance, that I would never vote for a man or a party that is too cowardly to come out in the open and denounce the liquor-traffic. It begins to transpire that I am by no means alone in my declaration. Let me repeat, by way of emphasis, what the *Christian Endeavor World* has said—why should our great political parties, year after year, go into elaborate discussions over all other reforms, and ignore and evade this one crowning curse of our nation? A revolt is coming. I do not know but I might call it a revolution. In fact, it begins to seem as if the time were coming for another “revolutionary war.” It is not altogether the liquor-traffic. Pushing the cigarette trade where the people do not want it, in China, for instance, is in the same spirit,

"putting the bottle to our neighbors' lips."

To show you how the great wide world seems to be moving forward in the lines I have indicated, I submit below a mass of evidence gathered from periodicals scattered all over our nation:

CREATING A DEMAND FOR CIGARETTES IN CHINA.

See the following, clipped from the *Chicago Advance*:

The Anti-cigarette League and other anti-tobacco movements which have done so much to put cigarettes out of the reach of young Americans will now have a chance to work on the Chinese if they care to invade that country. Opium, for centuries the curse of the Chinese empire, has given way before the insidious American cigarette, while in America the cigarette is leading to a more general use of opium, according to Professor Albert Schneider, in charge of the United States Bureau of Chemistry at San Francisco. Following the campaign against opium in China, the "tobacco trust," through its American and European branches, sent an army of men into the empire and distributed free more than \$5,000,000 worth of cigarettes. Professor Schneider says boys and girls in China, many little more than able to walk without assistance, are confirmed cigarette "fiends." Professor Schneider said he had been told opium was put into the cigarettes now being sold in China.

Just think of it, friends! China has lately been bending every energy to banish opium, and wonderful things have been accomplished; but right in this very action, when China is struggling to get out of darkness and into the light of the present age, this huge octopus, this same "tobacco trust," proposes to spend *five millions of dollars* for cigarettes to be given away to children in order to create an appetite and enable the great tobacco company to make more money—money, just money. That is all they are living for. Shall not the whole wide world rise up in defense of the Chinese children?

SHALL WE TEACH OUR BOYS ON THE FARM HOW TO GROW TOBACCO?

Just now this question seems to be up for consideration by the agricultural periodicals of our land. Shall these periodicals publish directions for growing a crop of tobacco, without a protest or even a suggestion as to its ultimate effect? Below is a clipping from the periodical called *The Farmer's Wife*, which seems to touch the spot:

A WOMAN TOBACCO GROWER.

Commercial bulletins report a Kentucky woman disposing of a crop of 3000 to 4000 pounds of tobacco which she raised on her farm. Perhaps in dollars and cents this was a good paying crop, but we wonder if this woman has a husband who "smokes from morning till night," and whose children have inherited the taste for it until ordinary tobacco, "like father uses," does not satisfy the craving, and other strong and more harmful narcotics are resorted to, perhaps at first on the sly, but ultimately in the broad open.

Here is another clipping from that same paper:

A YANKEE QUESTION.

The alarming increase of infantile paralysis has put the whole world on its guard in the work of prevention. In some cities restrictions have been placed on the attendance of school, church, and public libraries in order to guard against the development of new cases, on the ground that 400 children have died from this disease in the United States within the last year.

Four thousand children die of alcoholic diseases in this country each year, but that business is not quarantined. It is licensed. The very powers that would guard the lives of 400 children so sacredly will sacrifice the lives of 4000 without a qualm of conscience. Why? Perhaps every reader has his own answer on this subject.

Yes, indeed, why make such an ado about 400 children, and continue to keep mum in regard to 4000 others condemned to imbecility or a crippled condition for life, etc.? Here is something worse than death in babyhood.

Here is one more clipping from that same issue of *The Farmer's Wife*:

THE CHINAMEN'S OPINION.

"Alcoholic drinks which are now being introduced into China are called by the Chinese newspapers 'new Jesus poison' or the 'German poison' to distinguish them from the English poison, opium."

To say the least, that is not the creditable reputation which the United States, posing as a missionary country to nearly every foreign land, should crave. Where and what is the power that can call a halt on federal permission to send shiploads of American merchandise, oftentimes outweighing in poison what they contain in life-uplifting principles, to foreign shores?

Poor heathen China! that is, we have have been in the habit of *calling* them that. But is it any wonder that they should strike on to that suggestive title, "the new Jesus poison"? Just think of it! Shiploads of alcoholic drinks, with now and then a missionary, to uplift and *Christianize* 400 millions of Chinese!

THE GOVERNORS OF OUR DIFFERENT STATES —SHALL THEY BE WET OR DRY?

Some of you may suggest a Governor who stands neutral. My friends, it seems to be apparent just now, even if it has not been apparent heretofore, that there is no neutral ground on the wet and dry question. "He that is not with me is against me" comes in with wonderful pertinence right here. In a recent issue of the *Union Signal* there were letters or extracts from speeches from fifteen or twenty Governors of that many States, who come out so strong and clear that there is no misunderstanding or evasion.* Here is what our good friend Ex-governor Frank Hanley has to say about it. I clip it from the *Cleveland Plain Dealer*:

"I urge you to vote for no man for governor of Ohio this fall unless he is pledged to enmity to the saloon."

Such was the gist of the message delivered by

*By the way, it is worth while to read the "honor roll" of the States that have or have had such Governors. They are as follows: Maine, Kansas, Oklahoma, West Virginia, South Dakota, Mississippi, Tennessee, Texas, North Carolina, Washington, Utah, Arkansas, and Michigan.

Ex-gov. J. Frank Hanley, of Indiana, to the Methodist ministers of the Northeast Ohio conference at their session at Epworth Memorial Church last night. A packed church auditorium and Sunday-school room listened to his address.

Why is not friend Hanley once more Governor of some of our States, or, better still, *President of the United States?*

"THE RIGHT OF WAY;" ELECTRIC CARS OR "BEER-WAGONS."

Near Cleveland, on Sunday, the 8th of September, a beer-wagon was driven leisurely up to a railway crossing. The motor-man, with two cars in charge, supposing, of course, the wagon would stop when the car was in plain sight, pushed ahead; but for some reason or other, however, the stupid driver of the beer-wagon paid no attention to the railway track nor to the fast-coming car. In an instant there was a terrible smash-up. After considerable time spent in going over the cause of the accident, the city authorities decided that the electric cars were making too fast time, especially (although they do not say so) when beer-wagons might be discommoded(?) unless a slower speed were adopted. I read the various items in regard to the catastrophe with surprise and indignation; but a day or two afterward somebody had good sense enough to send the following to the editor of our daily:

Editor Plain Dealer:—I have just read in this morning's paper of the bad accident on the Lake Shore Electric at Dover Bay yesterday, caused by a beer-wagon crossing the track in front of a limited.

I notice that the authorities of the village have concluded to cut down the speed of the cars; but there is no comment, so far as I can see, as to why the beer-wagon should be there on Sunday, in violation of the law, nor as to the driver crossing the track without looking to the right or to the left, as one man testified.

It puts me in mind of the authorities in a Tennessee town, who, when the law was passed limiting the distance of saloons from a schoolhouse, met in solemn assembly and took steps to—move the schoolhouse.

I. K. HURT.

Amen, friend H., to what you say. When beer-wagons pushing their traffic on Sunday are of more consequence than the safety of the traveling public (although to tell the truth I do not believe in so much unnecessary travel on Sunday) it seems to me things are coming to a pretty pass. Have the good people who love righteousness and hate iniquity really *all gone to sleen?*

ACCIDENTS AND CATASTROPHES IN SUNDAY TRAVEL.

In the Chicago *Advance* the editor has a column headed "I am Moved to Remark." Here is a recent one:

That an automobile can make a bloody Sunday—it would be safer for some people to be at church.

Let me add to the above that the Cleveland *Plain Dealer*, which is not at all pu-

ritanical, has repeatedly called attention to the accidents and tragedies that occur almost as regularly as Sunday comes, in greater numbers than in any other day of the week; and notwithstanding this, nobody seems to suggest that these deaths and injuries occur just as our people have less and less scruple about using God's holy Sabbath as a day of rioting and recreation.

"DUFFY'S WHISKY" FOR THE CURE OF CONSUMPTION, ETC.

The following is clipped from the *Union Signal*:

Of all the drugs that have fallen into disrepute in late years, alcoholic liquors may be said to take the lead. Whisky was once thought an essential for consumptives. Now consumptives are warned against it on every side, except by a few ignorant (or worse) doctors, such as those who give testimonials to Duffy's Impure Malt Whisky. Indeed, alcoholic liquors are now declared to be a prolific cause of consumption.

Just think of whisky for the cure of consumption, and even spending thousands of dollars for the insertion of advertisements of whisky when whisky of any sort, let alone cheap impure whisky, is the very *worst thing* for a consumptive. And yet respectable periodicals continue to accept advertisements of *Duffy's malt whisky*.

THE STATE OF MAINE AGAIN TRIUMPHANT.

We clip the following from the *Union Signal*:

TRIUMPH FOR PROHIBITION IN MAINE.

As we go to press, the news is received from our National President, Mrs. Lillian M. N. Stevens, that William T. Haines has been elected Governor of Maine. This is a splendid victory for prohibition, and a heavy blow to the liquor interests, who have been using every effort to defeat him.

As we go to press I see there is general rejoicing in temperance and Christian periodicals all over our land that Maine has finally succeeded in getting a governor who is in sympathy with prohibition, in place of his predecessor, who openly favored the liquor party.

TEMPERANCE PROGRESS IN MICHIGAN.

A goodly number of wet and dry county campaigns are in process of organization. The legislature will be in session in January. All three of the candidates for governor are dry men, and the legislature looks good. The interstate liquor-shipment bill has been favorably reported by the Senate at Washington, and is practically sure of passage.

The strongest endorsement the Anti-saloon League ever received was given it at the General Methodist Conference at Minneapolis in May, when, out of 819 delegates, only twenty-five men voted in the negative. The Detroit Methodist Conference in session at Alpena, Monday, the 16th, gave the league a most hearty and enthusiastic endorsement by a vote of 420, only three men voting in the negative.

The great question in Michigan to-day is, "Have we staying qualities?" There is no question of the final victory if we have.

GEO. W. MORROW,
State Superintendent of Anti-saloon League of Michigan.

Cleanings in Bee Culture

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Editorial

THE COVER PICTURE.

THE scene on the cover for this issue represents a house-apiary at Vitznau, Switzerland, a little village on Lake Lucerne, at the base of the Rigi Mountain. The track in the foreground is the cog railroad leading up the side of the Rigi, the mist-shrouded heights of which appear in the background.

In Europe house-apiaries are much more common than in this country, where they are more the exception than the rule. The alighting-boards for each colony are painted different colors so that the bees, and especially the young queens, may not so easily mistake other entrances for their own.

MAKE SURE OF THE WINTER STORES.

WE have just been favored by a call from S. D. House, Camillus, N. Y., and P. G. Clark, who has been a partner of G. M. Doolittle for many years. Mr. House, as our readers know, is one of the most expert comb-honey producers in the whole country, and Mr. Clark is in the queen-rearing business with Mr. Doolittle.

Both of these beekeepers, Mr. House in particular, have noticed the lack of stores in the hives at this time of the year compared to other years, and they are fearful that the smaller beekeepers will lose a large proportion of their bees this coming winter from starvation. The trouble is that many will be deceived by looking down into the hive between the top-bars, and jump to the conclusion that there are plenty of stores because they can see sealed honey in the upper part of every comb, when in many cases there is but half an inch or so of honey, which will last the bees but a short time at the best.

Mr. House has been feeding 10 to 25 pounds of syrup per colony, in spite of the fact that there were acres of goldenrod in reach of his bees. Ordinarily, in the fall he is able to take off a super of honey gathered from fall sources and still leave the brood-chamber with ample stores for

winter; but this year he has had to do extensive feeding for the first time. The wet and cold weather prevails in many parts of the North, so that the bees could not get out to work on the fall flowers. The strictest attention should be paid, therefore, to the question of stores, for it is needless to say that no amount of packing for shelter will winter the colony without sufficient stores of good quality.

DEATH OF JOHN S. HARBISON, PIONEER BEE-KEEPER OF CALIFORNIA.

JUST as we go to press a postal card bearing the following comes to hand:

John S. Harbison, one who brought bees from Pennsylvania across the Isthmus of Panama in 1857, died in San Diego, Cal., Oct. 12, aged 86 years and 15 days. He was an honest man and a good citizen.

San Marcos, Cal., Oct. 15. G. F. MERRIAM.

While we feel sad that another veteran has gone, we can rejoice that he was permitted to live to a good old age. And, by the way, is it not true that our veteran beekeepers, especially the old standbys, the most of them, live to a good old age? I want to suggest to our good friend Dr. Miller that he take care of himself, and take particular pains to live as long as possible. And I would say the same to some others who are still "holding the fort."

Some years after Mr. Harbison took the lot of bees to California I grouped together the photographs of a good many of the prominent beemen of the world. In the very center I made a circle for the picture of Mr. Harbison; and I did every thing I could do to induce him to give me a photograph of himself; but I did not succeed, and so the picture card was sent out with Harbison's place left blank.

On my first visit to California I tried to get acquainted with him; but he was very busy, and at that time I was comparatively little known to the bee-world, and so I did not get very much in touch with him. In 1903, however, when we had a big convention in Los Angeles, he was very glad in-

deed to see me. He took me all over the country, showed me his out-apiaries, etc.

Now, I can serve our readers better by making a quotation from GLEANINGS for Oct. 1, 1903, in regard to the convention:

In taking up the part assigned me, "Reminiscences of Forty Years," I touched on the introduction of bee culture in California; and it was a happy surprise to see J. S. Harbison one of the foremost in the audience—that is, he sat near the speaker, very likely because, like myself, he is a little hard of hearing in his old age. As I finished I made a request that Bro. Harbison tell us something about the introduction of bees into California. If I am correct, this is almost the first time, if not the very first, that Mr. Harbison has attended a beekeepers' convention; and I am quite sure it is the first time he has given a full history of his remarkable venture. At first he seemed inclined to make only a few brief remarks; but in response to my repeated questioning he gave a very full and clear account of it. When he was quite a young man residing in Pennsylvania he got a notion in his head, so his neighbors said, that bees would pay well in California. He wrote there to find out about it, and was told there was nothing there for bees to live on; that if he brought them he would have to plant crops to grow honey before he could make them succeed. He could not give it up, however, and in due time he had two carloads of bees fixed to the best of his knowledge and skill for their long trip. Right and left he received nothing but criticisms and sneers. Just one man, if I remember, gave him a little encouragement by telling him to be of good cheer, for he believed that a great future was before him. He succeeded so well that only about a dozen colonies perished on the way, and then came his great triumph. It was during the gold excitement and high prices that his bees were landed; and they went off so fast at \$100 a colony that many were disappointed, and commenced bidding to the first purchasers. In this way a few colonies were sold at over \$200 each. In a little time Mr. Harbison shipped samples of his mountain-sage honey in 2-lb. sections to the principal cities of the United States. It was a novelty; and, it being war time, when things were high, his whole crop was sold at 25 cts. per lb. wholesale.

Side by side with Bro. Harbison, on the front seat, was J. G. Corey, of cold-blast-smoker fame. Bro. Corey got the bee fever; but he lived away off over the mountains, and the only way to get bees over there was to carry them on foot. He succeeded in purchasing a weak colony. As he was already something of a beekeeper he made a light hive to contain his nucleus, and strapped it across his shoulders. This hive he carried successfully more than 100 miles over the mountains. Part of the trip he had to make on snowshoes; but he got them through alive, built them up, divided, and sold his increase for something like \$40 or \$50 a colony.

Mr. Harbison was whole-souled. He not only accumulated quite a property with bees and other things, but he made good use of his means, and was foremost in all public enterprises. Above all, he was honest and upright in all his dealings. Those who ridiculed and made sport of his undertaking away back in the 50's are dead and forgotten; but the memory of Mr. Harbison's achievements will live and bless the world for years to come. May God be praised for the great and good men as well as women who have given our industry a lift and impetus in years gone by.

QUESTIONS ON WINTERING.

YEAR in and year out we are fairly bombarded with questions from beginners.

There seems to be no let-up, for there are always more beginners who are eager to learn. We are glad in all cases to answer these questions; but it is our purpose at this time to cover the ground somewhat as we have before, in order that many of our readers who, perhaps, do not realize that they are making mistakes, may be warned in time. We shall give the questions almost word for word as we receive them.

I have a room in my barn where I can easily put my ten colonies of bees during the cold winter weather. It seems to me they would be better off there than out of doors.

In a closed room above the ground, bees do not winter well, as a rule, if they are confined. It seems to be contrary to the nature of bees to be confined in a room, the temperature of which is varying from below freezing to 40 or 50, or even 60 degrees Fahrenheit. There are exceptions, of course. For instance, one beekeeper last fall asked our advice as to whether he should place his bees in an unused room in his house. We advised against the plan unless he could locate them close to the windows so they could have an entrance outdoors at all times. Before he received our letter, however, he had gone ahead and placed the hives, of which there were three or four, in this unused room, and he decided to leave them there, as they seemed to be so quiet. Last spring he wrote us that they wintered well. We should say that they wintered *in spite* of being placed in this room, and we feel sure that they would have been better off in a cellar or well packed out of doors.

There are several inches of honey in the upper part of the central combs in one of my hives, and rather more in the outside combs. Is this enough?

It all depends upon the size of the colony, and also as to how much you mean by "several inches" and "rather more." A medium-strong colony should have not less than 30 pounds of sealed stores. But you probably do not know how much comb space this amount would take. A comb of Langstroth size, which is the size of the regular Hoffman frame, if full of honey will weigh anywhere from seven to ten pounds. You can tell something from this about how much comb area should be filled. If a colony is being wintered on eight combs we should say that there should be three or four inches of honey in the upper part of the four central combs, four to five inches in the next comb on each side, and five to six inches in the outside comb on each side.

My bees have enough to last them through the coldest part of the weather, and then I expect to feed again in the spring. How shall I make the syrup for spring feeding?

It depends on circumstances again; but

equal parts of sugar and water will not be far out of the way, although two parts of water to one of sugar would be better.

We feel sure your colonies would be in far better condition if your hives contained all the stores they needed until the new honey comes in next season. If you have a reserve set of combs of sealed stores, it is all right to use them where they are needed in the spring; but spring feeding of syrup, especially by an amateur, is liable to make trouble. The bees get excited and are likely to start robbing. Most of the best producers have decided that their colonies, taking every thing into consideration, are in the very best possible condition for the next honey-flow if the combs contain sufficient stores in the fall, so that the bees in the spring need not feel that they must economize.

I live just ten miles north of the Ohio River, and my colonies are in single-walled hives. Will it be necessary for me to pack them out of doors, or winter them in a cellar?

We would not advise cellar wintering in your locality, for you have a good many warm days, especially in an open winter, when the bees can fly; and on these days bees in a cellar are likely to become restless, for it is hard to keep the cellar temperature from rising too much.

As to whether you will need to pack them out of doors, this will depend on the winter. Last winter colonies in single-walled hives even quite a distance south of the Ohio River suffered, and many, of course, died outright. In general, we may say that strong colonies in single-walled hives south of the Ohio River do not need very much extra packing, provided a sheltered location can be secured. By a "sheltered location" we mean one protected from the prevailing cold winds in the winter. If these winds come from the west, a location on the eastern slope of a hill is usually quite sheltered, or on the east side of a woods. A high board fence is a great help; but for best results it should entirely surround the apiary, as a fence merely on the west side sometimes causes counter-currents that really do as much damage as the unbroken wind.

For those who are undecided as to what to do in regard to packing, we may say that, during a cold snap, when the temperature goes lower than usual, colonies may be picked up temporarily and placed in the cellar. This applies also to localities further north, even to colonies in double-walled hives in case they stand in an exposed location. As has been mentioned so often, bees will stand a great amount of cold if protected from the wind. The

temperature may be quite low in a sheltered location without serious damage.

Three of my colonies are queenless. Will they live until spring?

Probably not. If you have any other colonies in your yard that are weak, but that are accompanied by a fair queen, unite the queenless colonies with them. As late as this it usually does not pay to buy queens, even if you can get them; for there is more difficulty in getting them introduced; and if the venture is unsuccessful the queen is lost and the bees too. It is better to unite them than to run the risk of buying a new queen.

The time to requeen is in the latter part of August or the first of September. The young newly introduced queens, especially if the colonies are fed to stimulate brood-rearing, will get a fine lot of brood started, which will result in strong vigorous young bees by the time the cold weather comes on, and there is little danger then that the queens will be missing during the winter or spring, just when they are needed the most. If all beekeepers would look carefully to this matter of queens in the late summer or early fall there would not be the great rush for queens in May and early June as there always is—at a time, too, when queens are much more expensive than they are later in the season.

I have one colony—a late swarm—that covers only four combs. Is it too weak to winter, or shall I unite it with another colony?

If it covered four combs on a cold day it may be strong enough to winter; but on a warm day the cluster should expand to six or seven combs. It depends on the temperature when you make the examination.

Right in this connection we should like to say a word regarding some beekeepers who seem to have phenomenal success in wintering. Some, even in cold climates, winter year after year with scarcely the loss of a colony; and others in a similar location, or in one that is even better adapted for wintering, perhaps, lose a large proportion. This loss may be explained in some cases by poor winter stores; for instance, aster honey, in localities where there are few flight days, is sometimes unsuitable. But we are inclined to believe that the difference is more often because of a difference in the strength of the colonies. Good strong colonies of vigorous stock made up largely of young bees, with plenty of good stores, will winter in spite of almost every thing, and the hives will be fairly boiling over with bees in the spring. Such colonies do not have to be fussed with and nursed in order to be in good condition for the honey-flow, and spring dwindling is unknown.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

RICHARDSON'S hive-stands, p. 664, look good. Bottom-boards will not rot as they will on wood, and hives will not tumble off as they will on stakes.

THE *British Bee Journal*, p. 307, says, "The average profit per hive from properly managed British bees is 20s." That's about \$5.00—better than we can do on this side.

E. S. HUDSON gets comb honey built between brood-combs, p. 638. That's all right if the brood-combs are new; but next to old black combs I've had honey sealed very dark.

C. M. HICKS, you say, p. 635, that bee-way sections without separators are harder to handle than plain ones. Please play fair. Were the plain sections also without separators or fences?

LOUIS SCHOLL, you say, p. 652, that you advertise "as exclusive comb-honey producers" when you sell honey that is one-third extracted. What would you advertise if you produced no extracted?

P. C. CHADWICK, p. 616, even if bees do prefer small entrances, does that prove that small entrances are best for you? Do they not swarm more with small entrances? [Small entrances in summer don't work well here.—Ed.]

YOUR SURMISE, Mr. Editor, p. 646, is that the queen, when crowded, drops eggs promiscuously, and the workers put them in the cells. My guess is that the queen herself lays in cells already occupied. I wish we could know for certain.

C. H. HARLAN, radiator-pipes make your cellar too warm for the bees, p. 638. Ever try wrapping two or three thicknesses of asbestos paper around the pipes? [Such protection will answer on furnace pipes, but not on steam or hot-water pipes.—Ed.]

MENTION is made in the last Straw, p. 649, of a "package of bees without brood or bees." If that is the work of "the intelligent compositor" he should be discharged instant. If it was in the manuscript—well—er—any one is liable to make mistakes.

J. WARREN ARTHUR, you like side starters in sections better than full sheets of foundation, p. 638. But don't the bees build drone comb in your sections? And doesn't that injure the looks of the sections? And, unless you use excluders, don't queens lay in that drone comb?

LEWIS P. TANTON'S story, page 581, sets one to thinking. In some cases such as he mentions, the disappointing delay is worse than if the amount of money involved had been stolen outright. If it's right to give the name of a common thief, why isn't it right to give the name of one who is worse than a common thief?

A FRENCH physician, Dr. Carton, has written a brochure in which he denounces as the three most deadly aliments, alcohol, meat, and sugar.—*L'Apiculture*, 272. And I suppose eating sugar does more harm in this country than in France, since more sugar is eaten here. [The world is full of extremists, and Dr. Carton appears to be no exception. We never knew of a husband and father who, after buying meat or sugar, abused his family or deprived them of support.—Ed.]

G. M. DOOLITTLE, you say, page 508, "There is no prettier sight than a super of sections all alike in advancement, with not a cell yet sealed." Isn't that same superful prettier after the sections are all sealed snowy white? Yet I'm like you; that super of unsealed sections, every section just alike, thrills me with delight as does no lot of finished sections. I suppose it's because of the evidence of the strong force of bees at work, and the flood of honey that a good God is giving us.

SOME THINGS P. C. Chadwick says, p. 651, suggest that bee-inspectors might be worth their keep if for nothing else than to spread information among beekeepers that will hardly be reached in any other way—I mean aside from foul brood. [It is certainly true that bee inspectors do a great deal of good aside from the service they render in the elimination of bee disease. Many do not read any books or papers, and yet they are always glad to get advice by word of mouth. The helpful advice given by the bee inspectors is worth all it costs to send them around, even if no service were rendered in combating bee disease.—Ed.]

H. H. ROOT, you say, p. 90, that "bees do scarcely any work in a comb-honey super three stories high." I wonder if that means just what it says. At this present moment half my colonies with section-supers are working in supers three or more stories high, and they were higher a week or two ago. [In this particular I was taking Mr. Anthony's statement, and possibly I put the matter a little too strong.]

But I should like to know just how many comb-honey producers stack up their supers three high. If the season were not exceptionally good it would seem as though there would be danger of too many unfinished sections.—H. H. R.]

"WE INTEND to preach the doctrine of producing more comb," etc., p. 610. I've an idea that a strong factor in the preponderance of extracted over comb was your preaching "more extracted." Look out now that your preaching doesn't get too much comb on the market. I'm leaning just a little to the opinion that it would be for the general good if only extracted were produced. [Where did we continue to preach more extracted, as we are now advocating more comb-honey production? —Ed.]

MR. EDITOR, can you tell us whether sections will ship as safely in safety shipping-cases without carriers as they will in regular shipping-cases with carriers? If so, then the safeties are the cheaper. Let's figure. Suppose we have standard sections and buy cases by the hundred.

Eight 24-lb. regulars will cost	\$1.44
Carrier for same.....	.60
Total.....	2.04
Eight 24-lb. safeties will cost..	2.00

A saving of half a cent on each case by buying the safeties. Suppose we use 12-lb. cases.

Twelve 12-lb. regulars will cost..	\$1.38
Carrier for same.....	.60
Total.....	1.98
Twelve 12-lb. safeties will cost..	1.80

A saving of 1½ cents on each case by buying the safeties. And that counts nothing for the labor of putting together the carriers. On the other hand, it must take a good deal of time to put the sections in the cartons of the safeties. With the carriers you must always ship a multiple of 8 or 12 cases. With the safeties you can ship any number you like. I think I would rather handle single cases at a time than to handle the carriers. One man or boy can handle the single cases, and there must be two men to handle the carriers. But the question still remains: Are the safeties as safe without carriers as the regulars with carriers? [No comparative tests of the two kinds of cases in the manner stated have been made; but we would recommend both safety cases and carriers combined. While the safeties compared to the old-style cases are unquestionably superior to the old-style cases when neither is in carriers, yet we believe it is very wise to give comb honey all the protection it can reasonably have. Of one

thing we are sure—that, unless the old-style cases are discontinued, the comb-honey business is doomed; for commission men and buyers will not longer tolerate the breakages of the combs, the consequent leakage, and the difficulty of making settlement satisfactory to either party.—Ed.]

J. F. CRANE, p. 577, just to please you and J. L. Byer (and myself) I'm going to say "grade" instead of "hybrid" hereafter. [Apparently the term "hybrid" has been undergoing a change, or else the term is broader than it is usually given credit for being. The latest edition of Webster's New International Dictionary gives it the following definition: "The offspring of a male of one race, *variety*, species, or genus, with the female of another" (italics ours); "a cross-bred animal or plant . . . Those between distinct species are distinguished by some as *true hybrids*. . . By many plant and animal breeds *hybrid* is now limited to a cross between different species, cross-breed being used for a cross between races or varieties of the same species." Now the last sentence above quoted narrows down the term; but nevertheless, according to the dictionary it is perfectly correct to speak of a hybrid as a cross between varieties. The Century Dictionary and Encyclopedia have the following: "The offspring or progeny of animals or plants of different varieties, species, or genera; a half-breed or cross-breed . . . The *commonest* are those resulting from the union of opposite sexes of *varieties* of the same species. . . Hybrids or half-breeds of the human race are among the best known examples." The italics in the foregoing are ours.

It will be seen from the above that the two dictionaries very closely agree in sanctioning the broader use of the term. Therefore it does not seem to us that "hybrids," denoting a cross between Italians and black bees, for instance, is incorrectly used. It is possible that the word has degenerated; but if so, beekeepers are not the only ones who have had a hand in thus changing the meaning. Moreover, assuming for the moment that the narrower meaning is the correct one, the mere fact that beekeepers dropped the term "hybrid" would have no effect on the use of the word in general.

In GLEANINGS and in the ABC and XYZ of Bee Culture we stand as opposed to changing apiarian terms which have been long in use, unless such terms are clearly misleading. For example, we favored dropping the term "black brood," owing to the fact that the diseased brood in this case is not necessarily black.—Ed.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Speaking of queen bees, may I be allowed to forecast that, in the near future, there will be some radical changes made in the methods of raising them? Lately we hear much about rearing from eggs instead of transferring the larvæ, and I believe this is one step toward the change that is apt to take place. Anyway, I am very firmly convinced, after an exhaustive test, that queens reared by transferring the larvæ do not live nearly as long as do those reared under the swarming impulse. I base my belief on a large number of cases taken collectively, not on individual cases, which prove nothing one way or the other.

* * *

Relative to the new postal ruling of the United States regarding the mailing of queens, in our humble opinion the Department is to be congratulated on making an effort to prevent the dissemination of disease in mailing-cages, and I wish that our Canadian Postal Department would make a similar ruling. At the last Ontario convention held in Toronto, November last, this matter was spoken of when the committee was considering what recommendations to make to the Federal Parliament regarding necessary legislation for the bee industry. While the most of the members of the committee, including myself, were not in favor of doing any thing to hamper the free introduction of queens into Canada from the United States, owing to the fact that the demand for queens is greater than Canadian breeders can supply, yet I venture to say that every member of that committee will be glad that the ruling referred to has been made. While the chances of introducing disease in mailing-cages may not be very great, yet that there is a chance no one will dispute; and then, again, there is no question but that some queen-breeders have been unjustly accused in the past. If they take all precautions against the chance of disease being carried in their cages, there will be no chance of an unjust accusation being made against the queen-breeder.

* * *

From the fact that some queen-breeders have made a success of using a candy with no honey in it, it does look indeed possible in the near future for *all* of them to be on the safe side regarding any accusation of spreading foul brood through the country in their mailing-cages. While not in the business, most assuredly I would try the plan if needing any candy for fitting up

mailing-cages for queens. In England it is quite a common thing for many colonies to be wintered exclusively on candy instead of honey stores; and in this country it has been tried to a limited extent as well. Only a few days ago, while talking with Mr. F. L. Pollock, of Stouffville, Ont., he told me that last winter he tried the plan with the best of success, and that he considered it more economical than feeding sugar syrup, and not nearly so much bother. This winter I believe he intends to try the plan on a more extensive scale, and results will be awaited with interest. I believe he follows the plan for making the candy as outlined in GLEANINGS. I said *he*, but really it should be *she*, as Mrs. Pollock does the work of making the candy: just as I expect another woman would be asked to do the work if I needed some candy made. It's a sure guess that I would burn it if I tried to make it myself.

* * *

ITALIANS CAME OUT AHEAD IN THE RACE.

In Eastern Ontario the majority of the bees have been of the old-time black or German variety; and while my limited experience in that locality as an inspector convinced me that those bees in their purity are much more quiet than many of the hybrids kept further west, yet I knew nothing positive as to their honey-gathering qualities as compared with the Italians or Carniolans. In the spring of 1911 I bought a large apiary out there, and in the fall about a third were Italianized. This season (a poor one in that section) the 80 Italians stored more than double as much as the 160 blacks in the same apiary, all receiving the same attention. At the last convention of the Ontario Association, some men from the East strongly championed the blacks; and I have been seriously wondering lately whether they have ever given the other races a trial. At any rate, if all that east yard of mine had been requeneed a year ago it would have meant more dollars for us this year; and when a man tells me after this that the blacks are as good as Italians or Carniolans I will just think he is joking. At any rate, European foul brood is causing a good many to change stocks, for while Italians and Carniolans are not *immune* to the disease they stand up against it much better than the blacks. In fact, experience has shown that there is no use trying to cure the latter race if they once get infected.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Economy in beekeeping is a rare thing to find. We lose here in the West by not making use of the wax, and also the honey suitable for vinegar. Some of us are buying covers and bottom-boards that could be made as well, and for half the cost, at the home planing-mill. I would not advocate any thing but a dovetailed hive body for the West; but it is a fact that many beemen are obtaining very satisfactory service from home-made fixtures. The making at home of super bodies, and purchasing only the inside furniture, means a saving of money for many where freight rates are excessive. The manufacture of brood foundation from home-rendered wax is successfully done by an increasing number of apiarists during the winter months. Surplus foundation, as yet, seems to be beyond the ability of the average beeman.

I have galvanized-iron covers that are the equal of factory-made covers costing 50 cents each, that cost me 22 cents—11 cents for the galvanized iron cut and crimped, and 11 cents for the wood sawed and ready to be nailed together. However, it is not advisable to go into home-hive construction until the comparative costs have been ascertained. I would not attempt, located as I am, to make my own frames, section-holders, separators, hive bodies, nor shipping cases. Some may be located where it is necessary to make these things or have them made in their home town.

* * *

BAITS AND BULK COMB HONEY IN COLORADO.

In talking with Mr. A. S. Parsons, of Rocky Ford, the other day, he told me that the complaints of the buyers of bulk comb honey might be partly attributable to the fact that in selling the honey the chunks (should I say bulks, Mr. Scholl?) were taken out and sold, without a sufficient amount of extracted taken out with each sale. The combs keep rising to the top; and when the honey is two-thirds gone from the package, there is nothing left but extracted honey, which makes the dealer come to the conclusion that he has been cheated.

The beemen at Rocky Ford sell all of their bait combs that contain sufficient honey as bulk comb honey, breaking the combs from the sections and packing them in large-mouth sixty-pound cans. Extracted honey, warmed just enough so that it will not melt the combs, is poured over them until the can is filled. A sixty-pound can will hold about 58 pounds net, and they bring from \$5.50 to \$6.50 a can. There

seems to be a good demand for all of this kind of honey the producers have; but of course the amount they have is limited. Kansas takes the most of it, the local market taking none whatever, or practically none.

* * *

GO WEST, YOUNG MAN, GO WEST.

S. King Clover writes that one should think twice before leaving cozy homes in the East, where society is established on a more or less firm basis, for the undeveloped regions of the West. This is sound wisdom; and one who has a well-established business in the East would be foolish to pull up and move into a country where conditions of life are so different. But the West still holds opportunities for the young man whose habits of life have not been firmly formed, and who can adapt his practice to new conditions such as the West presents. This is a young man's country, and the obstacles to be overcome are no more difficult than the pioneers of the middle West had to conquer. The young man who can enter a new country, clear the sage brush, dig ditches, build roads, and put irrigating water on his land, is building a rugged worthy character at the same time. He will outdistance the young man who inherits an improved farm in the East, for which his father had to work and struggle. Because the West is hard to win to civilization and tillage is why the people here think so well of their country. It is said in Oregon that, the further West one goes, the more the people boost their country. I thought that Colorado people boosted things to the limit. What we need is more builders and fewer boosters. The booster is the speculator who buys land at \$10.00 and sells it for \$50.00 or \$100.00, while the builder is the one who puts in a crop of potatoes and sells \$100.00 worth to the acre or better.

There are still opportunities in the West for beekeepers; and one contemplating moving would do well to take an extended trip, looking up a desirable location. Places can be found where crops of honey will be good, and where it will be a long time before there will be any danger of overstocking. The part of the West with which I am familiar is distinctive in two ways—the delightful climate and the progressive mental atmosphere that conquer obstacles. The West needs young men, and many of them. Riches may not be found, but a worthy life may be led in the fertile valleys of the Rocky Mountain region.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Letters of inquiry regarding the State Association should not be sent to *me*. Write direct to Sec'y A. B. Shaffner, 4232 West First St., Los Angeles, Cal.; and while you are writing you should send in \$1.50 dues for a year, and get the crop reports next season. They will be worth many times more than the price of your dues.

* * *

October started in with good general rains, the value of which will depend on how soon others follow to sustain the vegetation that has started. Fillaree is coming up nicely, and if occasional rains continue, our early aid to spring breeding would be assured. Personally I have no misgiving in this matter, and am willing to go on record as believing we are to have plenty of rain, a warm winter, and a honey crop.

* * *

I have been harping about extracted honey since I began the editing of this department, and have run the department with my own ideas and policies. My views have been the opposite of the editor's in this respect, because of an honest difference of opinion. But the price of the best grade of comb honey this season in Los Angeles has averaged ten cents a pound higher than the best grade of extracted. Here we have a difference in price that surely must look good to beekeepers who are figuring on how they can get the most from their bees. A beekeeper told me a few years ago that he put just as little into his bees and got just as much out as possible. That kind of beekeeper has, to be sure, no business working for comb honey; but the majority are of this class, and find it easier to turn an extractor than to scrape and pack sections. It begins to look to me very much as though there were going to be some good money in comb honey for those who are willing, and fitted in knowledge and patience to give it the proper attention. The past season, one of the most successful beekeepers, to my knowledge, produced largely comb honey, using extracting combs for the lighter flows. His best grade sold for 18 cts. per lb., while the best extracted brought only 7 or 8 cts. Such a difference will make comb-honey worth while.

* * *

I mentioned, Oct. 15, something about California beekeepers being a demoralized set so far as being organized or alive to their interests is concerned. I am going to continue on this subject for two reasons.

First, I want to say there are very few industries in the State, of as much im-

portance as the bee industry, that are not better organized. The orange, raisin, and celery growers and other producers have their organizations through which they work in unison, and trust those in charge of the organization. I believe the success of many of these organizations is due to the fact that they have many men in them who are not strictly of the granger class. We beekeepers, to a very great extent, are purely of granger tendencies, and inherit a suspicious, distrustful, independent nature that is hard to overcome. We are not to be blamed in the least for this attitude, for we have long been the prey of buyers and commission men, and our misgivings are well founded; but this is more reason why we should be in a mutual organization composed only of producers, for then we should be able to help protect ourselves. A great many look upon organization as did the Jew who was going to Europe with his son. When in mid-ocean their ship sprang a leak and was slowly sinking. The son, learning of the danger, rushed to his father, exclaiming, "Father, the ship is sinking." The father answered, coolly, "Vel, vot of it? It don't belong to us."

This illustrates my point—that it is hard to get beekeepers to realize that their industry is sinking. It may not belong to them, yet they may go down with the rest. I am becoming more of an enthusiast over organization every day; but I believe it will be necessary to educate to some extent before we can succeed in getting a great many to take hold. But this is being done, especially the last few months, during which time the State has aided our association in holding meetings at various points which I have previously mentioned.

Second, the average beekeeper is not posted on markets or prices, and many in the more remote districts sell their honey to the first buyer who comes along, at whatever price is offered. Naturally he feels that it is *his* business, and it undoubtedly is; but in many cases honey prices are from one-half to two cents more per pound than the grower gets, and, in consequence, he takes from 60 cts. to \$2.40 per case less than he should. As soon as we are able to get our membership up to a point where we can furnish cans and cases at a reduction to our members, then they will begin to come in out of the hills to join our association.

Five cents saved per case looks larger to many beekeepers than one-half cent more per pound in the price of their honey.

Conversations with Doolittle

At Borodino, New York

DISPOSING OF A HONEY CROP; THE COMMISSION MERCHANT NOT TO BE DESPISED.

"I want you to tell something about disposing of a crop of comb honey to the best advantage."

"The first thing is, to put it up nicely for market, so that it will attract the eye of every person who happens to see it. Years ago I used furniture tacks, with large shining metal heads, using one over the head of every nail that was in sight on each case containing the honey. Then I used a dark wood, a sort of yellow brown, with lighter shades all through, showing the 'grain' of each year's growth. The name of this wood is sumac. This was for the side cleats, which held the sections in the cases, these cleats being only 3-16 inch thick, 1½ inches wide, which allowed two-thirds of the 'face side' of the sections to show their nice white faces to the public. To say that I enjoyed getting out the sumac poles, which grew on father's land, sawing, planing, and preparing them in my own shop on winter days, hardly explains the fun I had in fixing up these fancy cases. Cases thus fixed up, filled with the nicest snow-white combs of basswood honey, were admired by hundreds at my home. I sold much of it at home, and what was not so disposed of I sold with the remainder of my crop to a dealer in Syracuse. A case of this was set outside his store near the walk, and he told me that almost every one who passed by was sure to stop and look at it, making many exclamations regarding its beauty, and then would come in to purchase some.

"But having the crop all put up nicely, what next? No matter how good one may feel over a crop of the most attractive honey, he must have no thought of holding this crop permanently. One can not live on honey alone, and he must exchange this beautiful crop, in which he has taken so much delight, for money to buy the things another has produced.

"I remember, as yesterday, when my father, more than half a century ago, exchanged all the box honey he could produce (and he had nearly three-fourths of a ton one year) for boots, shoes, stockings, clothing, furniture, etc., doing this to as good advantage as would be the case if we received 40 cents a pound to-day.

"The disposing of one's crop of honey seems to be the one thing which puzzles the beekeeper—not that it is difficult to

sell it, but to sell it advantageously; that is where the trouble comes in. Beekeeping is an *industrial* pursuit, while the disposing of the product is purely commercial. Few men are born equipped for a commercial life; and where they are, if they should start out with an industrial pursuit they would soon work out of this into the commercial, where they rightfully belong. Not one man in five thousand is equally fitted for both the industrial and the commercial. I know that farmers sell their own products quite generally; but their hogs, sheep, cattle, butter, cabbage, grain, etc., are things which are *sought* after by dealers in every city and at every railroad station throughout the country. But it seems to be different with honey, especially in this day and age of the world. Fifty years ago, occasionally a dealer would go through these parts buying up what honey he could; but this method now would be a surprise. Honey does not seek its level in the markets as do flour, meat, sugar, etc., and it does not have a standard quotation as do these things. It is not uncommon to find the price quoted in one market from twenty to thirty per cent higher than in another city, when it would seem by the scarcity of nectar-secreting flowers that the latter should be the one that would pay the higher per cent.

"In view of these disadvantages which the apiarist labors under, and after trying most of the many plans given for the disposing of a good crop of honey, after it is nicely put up, I have come to regard the commission merchant as the best friend of the one who does not care to try his hand in a commercial way. By devoting oneself to the specialty of beekeeping, the bees may be made to give greater crops, and thus one may, to a certain extent, save the commission charged for the selling of his product. There are many commission merchants who are as upright as they of our own household; and by using the proper care one can find such as are proved to be reliable by a reputation founded on a long-established business. Having found the righteous man (Dun's or Bradstreet's commercial reports will help in this matter), then one should get his product into their hands so they can have sufficient time to take advantage of the market in selling it. I find that the best time to have it reach these merchants is from September 20 to October 15, in order to give them a chance to obtain the best price."

General Correspondence

MOVING 30 COLONIES OF BEES 40 MILES

Some Predicaments Resulting from Inexperience

BY "SUBSCRIBER."

For several years Bert Harper and I kept bees in a little town where we attended high school. As I lived at one end of the town and he at the other, neither of us feared overstocking the location, for our combined apiaries did not amount to over seventy colonies. During the school year we were busy with our studies; but our spare hours we freely gave to the bees. This was only fair play, for they were very busy for us. But when we came to the end of the senior year we had to part company, and this is the reason for the story.

That spring Bert's father sold his farm and moved away to another, which was some forty miles distant. The purchaser of the old farm gave consent to Bert to leave his thirty colonies of bees on the place till the end of the school year in June, when he planned to move them to their new quarters. About the end of July, Bert paid me an unexpected visit, and asked if I would help him move the bees the next day, in case he had every thing ready beforehand. I told him I would do it if he couldn't get any one else, but that it would be a dangerous job; for if I knew anything about bees, they were a bad cargo. It would be hard to close the hives bee-tight, and yet give sufficient ventilation. The least error would mean escaping bees, stung horses, a possible runaway, a smash-up, and broken necks. When he heard all this he insisted on my helping him, for everybody else was afraid to venture. So, not to go back on old friendship. I promised to be ready the next day.

Late the next afternoon, as the shadows began to steal across the fields, and the sun was putting himself to bed, we started to nail up the hives and fit them for the long journey. Some of them were shaky, and the work consumed time. By eight o'clock this part of the work was done, and the next thing was to load up. Bert had an idea that this could be done in a few minutes, but he was sadly mistaken. The hives gave us no end of trouble. Nothing seemed to fit on the rigging of the wagon. The main trouble was that, besides the thirty hives, Bert was taking what was about a wagonload besides, comprising canned fruit, house-plants, empty hives, and a lot else. It was well on to

eleven when we got the load in shape and tied the last rope.

"You're sure it's safe, are you?" inquired Bert, looking carefully at the high-piled load.

"Safe!" said I; "of course it isn't very safe; but it's the best anybody can make it."

Then we started the horses and the trip began. When we hit the main road, affairs moved more smoothly and rapidly. It was now close to midnight, the road was very dark, and in some places more narrow than we liked. Our lantern, too, was a bother, for it would flutter every little while and go out, and it took about ten minutes every time to get it going again. Still, we were quite happy, for the worst seemed over. The world was still, and all we could hear was the steady hum of the bees and the straining and banging of the great wagon.

After about half an hour we came to Rock Gorge. We got down the one side safely, and the ascent commenced on the other side. All went well till we were almost at the summit, when one of the hives fell off with a bang in the road behind. I yelled to Bert to drive right on to the top, while I saved what was left of the hive. It was a sorry mess; but I fixed it up the best I could, and off we went after a delay of half an hour.

"Bert," said I, "you will have to drive some if you get there; it's almost twelve now, and we have come only a few miles."

"It can't be helped. We ought to have loaded up better," was Bert's somewhat tart response.

We had not covered many miles before I became curious about a hive on the edge of the load; and as I leaned back to make it fast I lost my balance and went head first into the road, taking the hive with me. For an instant I was dazed as much as the bees may have been; but in due time we all responded to the call of duty. I got the hive back on the load, picked up the lantern, climbed up on the rig, and once more we started on our way.

After a while we saw the lights of Williamsburg shining through the night, and we rejoiced that our first twelve miles would soon be passed. We wished we were on the other side, for the hill leading down to the village is steep in places, and right at the foot of the steepest place there is a railway track.

The hill and the railroad together made a bad combination on a dark night. We had just come to this place, when all at

once there was a sharp crack, and the horses snorted and jumped in alarm. I called to Bert, "Into the ditch! quick! The chain is broken. Get into the ditch or the load is lost!"

Bert managed to make the ditch, and the load was saved for the present. Bert climbed down, discouraged.

"This is a fine fix," said he. "The chain is broken, and not a soul around here that I know. I wish I had never started."

I was not feeling so bad, and hunted up some fence wire with which we fixed up the chain, and on we went with renewed courage. Our course led straight through the town; and once when we were well through it, we took the State Road direct for the upper country, and toward Galen Hill. The load seemed to be charmed—every thing was going nicely, and the horses stepped along as they had not done at all before. As we reached the foot of the rise the sun was just peeping up above the eastern hills. We thought a rest would be a good thing, and so we halted and inspected the load. It was a sorry sight. It looked just as if some one had taken a stick and stirred the whole load of hives and truck into a tangled mess.

But the worst of our evils just began to manifest itself; for with the broad daylight, every once in a while a bee would escape and flit in an uncertain way about the wagon. The higher the sun rose, the more the bees got out, till we were really at our wit's end to know what to do. If we stayed there in the road we would block up the traffic, and that would not do. If we went ahead we were sure to be in trouble; for with twenty miles to go, and thirty colonies of angry bees to manage, we had our hands full.

But standing still was not going to help, so I said, "Come on, Bert. I don't believe we can get very far with such a load; but we can try, and may be the bees will not bother very much." So the horses were hitched on again, our bee smudges were lighted, and the war commenced.

Galen Hill is about three miles long, but not very steep. We made the ascent slowly, one driving and the other sending great clouds of smoke on the bees. By the time we reached the top, the bees were under control and our prospects looked brighter. Bert and I both thought that our difficulties had been surmounted as we triumphantly drove through Galen.

The village passed, the level road lay before us. Suddenly, without any warning, something struck me a sharp blow on the face and I felt a burning prick. At

the same moment Bert ducked and fought the air. "Where did that bee come from?" I yelled. "They're getting out. Smoke 'em! smoke 'em! Can't you?"

Just then another vicious insect got me on the hand, and then another and another. A thin stream of yellow bees was leaking from the hives. Bert snatched up the smoker and began to do his best, but all too late. One of the horses jumped and plunged sidewise. Instantly I dropped on the whiffletree and pulled the bolt, with not a second to spare, for the horses leaped and would have bolted, but Bert grabbed one by the head and the other, and so we got them away from the wagon. They were almost crazy with the stings, but Bert brushed some of the creatures away from their ears, and they became less restive. Little by little we gained on the bees, till the horses recovered their senses. When all was quiet we stabled them in a neighboring barn and turned our attention to the bees.

The wagon was where we had left it, in the middle of the road, and the bees flying all about it. The air seemed full of them. As we came up, how they did sting! I saw the load was blocking the highway, and so by pulling and pushing we got it off to one side of the track and made an examination. It was not one hive that was leaking, but all of them in general. The worst was that we could not find any holes from which the bees were coming, and yet they were coming. The case looked hopeless. Just then a team came in sight. Here was a new danger. Would it be possible for that team to get past the raging bees? In a few minutes the vehicle was right abreast of us, when the horses made one plunge, almost throwing the driver from his seat, and disappeared down the road in a cloud of dust. A few minutes passed, and another came and had the same experience. To help out we opened the fence on one side of the road to let teams pass by through the field; but this expedient did not relieve us entirely, for some would stay in the road in spite of our warnings.

It was about noon when a man came along, driving a spirited team, and tried to get by our wagon. The bees went after him. His horses shied, and then almost balked. He was almost by when there was a crack, and his whiffletree was down and also the wagon-tongue. This was a bad job. In a second we both jumped to help. I picked up the wagon-tongue, and Bert hung on to the whiffletree while the man urged the horses forward. The lady

in the carriage screamed, and jumped up and down with fear. This scared the horses worse; and when she pranced they did too. But the man soon put a stop to this; and as we were all the time getting further from the hives, the bees went back to their company, and our friends drove off.

The automobiles with covered tops got it worse than the carriages. The first one came along just after dinner, at full speed. No heed was given to our warning. As the party drove by, the hood scooped up a fine mess of bees, and there were yells and hoots and plenty of language. As the afternoon wore on, the time seemed interminable. We had been up all night, and were sleepy; but there was no sleep for us, for teams kept coming and going, and it was our duty to warn them the best we could.

When the welcome night fell at last we began to rearrange the load; and after a bit we had things fixed for the seventeen miles that were still before us. By nine o'clock that evening we were again moving. The horses pushed on in the darkness, along deep forest roads, and past cultivated fields. All the time we were so sleepy that we could scarcely hold our heads up. By ten I was so completely worn out that I dared not hold the lantern for fear of dropping it, and tied it to the top of the rigging, still keeping my hand on it. The next thing I knew, Bert was punching me for I had let go of the lantern. The road was far from safe, for on one side was a high cliff, and on the other a deep gorge. If the horses swerved, an accident would be sure to follow. But though we were almost dead from lack of sleep, it was imperative to get on. We must reach our destination before morning, for a second day like the first in the road would kill the bees. So we pushed on, one walking while the other drove, and then the other did the same.

We had been going this way about an hour, when all at once Bert called out that he had missed the crossroad that led to his place. With some impatience I advised him to hunt it up, so we could go ahead like sane people. Off he went with the lantern, and presently returned with the word that he had discovered it. At once the horses were turned about and headed in the proper direction. It did not take long to get to the crossroad, and we were nearing home, with the farm buildings only a mile away. We felt the joy of victory. But this was not for long. In the uncertain light of the morning,

when we came to a small bridge we failed to keep to the center, and the wheels on one side did not hit the planking. Before we could help ourselves the wagon was half tipped over. We could not go ahead. We could not go back. We were simply stuck fast. So we unhitched the horses and went the rest of the way on foot.

When we arrived, Bert's father and the hired man fitted out another team and moved the apiary into the yard, near the house. We boys were a wretched pair to look at, and spent most of the day in slumber. But that did not make us presentable. Only time could do that.

Of the thirty hives of bees, sixteen came through safely. And it may be added that Bert and I have never engaged in the job of transporting bees since that first experience.

[The experiences cited here are by no means unusual. Accidents have occurred more than once in which lives were endangered and much property lost; and it behooves every beekeeper to prepare for the unexpected. No guesswork should be put up with, for the risk is too great. Hives, if old and shaky, should be fastened together with cleats nailed to the covers, bodies, and bottom-boards, and every precaution should be taken to keep the bees from getting out in case a stop becomes necessary.—ED.]

WHITE CLOVER FROM MAY TO OCTOBER

BY L. D. MASSIE

We have had white clover in bloom here since May 4 and there is some in bloom now; but the cold rains and weather kept us from getting much surplus. Spanish needle, goldenrod, and a white flower weed that grows four or five feet high gave a surplus super for extracting and plenty of winter stores.

BEES FOLLOWING OPENING IN THE WOODS.

On page 618, Oct. 1, Mr. Semper speaks of bees not going in a straight line because of the wind. I have hunted bees in the woods since I was ten years old, and have followed a good many bees to their homes in the trees. I have found some beelines that turn and go very near in the form of a triangle. The bees followed openings in the woods.

I believe I can see a bee about twice as far as Mr. Semper spoke of. I have, by running after the bee, kept it in sight across 40 acres or a quarter of a mile.

Somerville, Ind., Oct. 10.

CREATING A LOCAL MARKET

BY FRANK C. PELLETT

Now that the honey crop is harvested, the next question before the beekeeper is how to find the most profitable market for his crop. Few men have a proper appreciation of the possibilities of the home market. When the writer moved to his present location and began keeping bees in a small way there was but a slow sale for even the little surplus produced. I found a beekeeper in the person of John Dufford already on the ground. He was producing a fine article of comb honey, and putting it on the market in first-class con-

pose of I found sale for it during the year, but mostly in such small quantities as to be annoying. I did not want and could not afford to get customers by cutting the price, for the price was already too low. I had no intention of shipping the few hundred pounds that I had to offer to some other point, but determined to create a market. Accordingly about the third year I put extracting-supers on a few colonies, and put up the product in quart jars. I chose the Schram jar, as it is of clear glass. I find that the honey sells much more readily in these jars than in the Mason jars, partly because of the more attractive top and partly because of the clearer glass, which makes the honey look much more attractive. The merchants were skeptical about extracted honey. People would not buy it, they said. I remember how hard I found it to make a deal with one merchant by which I left half a dozen jars to be sold if possible; and if not sold, to be returned. The first season the sale was slow, but I kept it constantly on display in a favorable situation in several of the stores. Sometimes I sent a liberal sample to persons who might prove valuable customers. The second season I produced more extracted honey and it sold better.

Now I sell all I can produce through one merchant, and do not have to bother about peddling it around. I now work my few colonies nearly altogether for extracted honey, and leave the comb-honey market to Mr. Dufford. Instead of injuring his market I have helped it, and the price has constantly tended upward. Last year I sold about 2000 pounds, nearly all through the one store, and our supply ran out several weeks before the new crop came in. This honey advertising has also helped the store with its other lines, and helped to enlarge their trade. They tell me that they have several regular honey customers who live in Des Moines and Omaha, but that they have become accustomed to our honey, and feel sure of the quality.

This fall at the county fair there was a special exhibit of Atlantic-made goods. The local factories had their lightningrods, wagons, brick, tile, and other goods on display. I prepared an exhibit for my grocer also. An observation hive was used to attract attention to the display. About one hundred pounds of honey was put up in pint, quart, and two-quart jars. Behind the whole was placed a large sign appropriate to the place where the exhibit was placed. It read as follows:



Frank C. Pellett, State Bee Inspector of Iowa.

dition. As would be expected, he had the cream of the local trade, and his customers were so well satisfied that they seldom even asked at what price a competitor was selling. If asked about honey they simply replied, "Dufford always supplies us with what honey we use." Most of the stores also were supplied from the same source. As I did not have a large quantity to dis-



Apiary of American hives belonging to F. Richter, Pottenstein, Austria.

PURE EXTRACTED HONEY
 Gathered by Cass County Bees from
 Cass County flowers,
 expressly for
 Stier Grocery Co.,
 Atlantic.

A label somewhat similar was pasted on each jar. No one was placed in charge of the exhibit to take orders; but the secretary of the commercial club, who had general charge of all the exhibits, remarked that this exhibit attracted more attention than any thing else in his charge. As a result of this advertising the sales increased so much that the honey we had put up and regarded as sufficient to last the trade until near the holidays was sold within a month. Many new customers are added every month, and this season's crop bids fair to be sold through one grocery before Christmas. Four years ago we could not sell one-fourth as much through six or seven stores in the same length of time.

Instead of having to ship honey to the central markets, or having it a drug on the market at unprofitable prices as formerly, the local stores now take all the honey produced by the several beekeepers in this locality at profitable prices, and ship in honey from abroad to supply the demand long before the new crop comes in. I have not sold comb honey for less than 15 cents

per pound for three years, although I will not produce any hereafter. I get 12½ cents per pound for the extracted and the grocer furnishes the containers. The retail price is 30 cents each for pint and 50 cents for quart jars. I think that Mr. Dufford has found an equal advance in the demand for his comb honey, though he has used somewhat different methods to increase the sales.

There is no doubt in my mind but that the demand can easily be created for far more honey than is now produced, which can have but one result—higher prices and readier sales. It is an easy matter to create a market at one's own door if only a little ingenuity be used in calling attention to the product, putting it up in attractive packages, and delivering a uniform quality. The same principles apply to other produce. This season there was an enormous stock of plums in western Iowa, and thousands of bushels rotted on the ground. We sold ours readily by packing them in small baskets similar to those that the finest western fruit is retailed in. At the same time, fine plums in ordinary half-bushel market baskets were rotting in the same store not ten feet away. One great secret of successful marketing lies in putting your product in a package that will look attractive to the buyer, and at the same

time putting up a quantity just sufficient for immediate use, as most people buy in small quantities.

Atlantic, Iowa.

[There are great possibilities for one who has the ability and the time, to develop the home market. Sometimes a locality is found where not one family in a hundred buys honey, and there is no demand for it. Advertising then works wonders.—Ed.]

180 POUNDS PER COLONY IN AUSTRIA

BY F. RICHTER

I take the liberty of sending you a photograph of a part of our apiary. We use only Langstroth hives of American manufacture, and are highly pleased with them. There are about 30 colonies in all. Nos. 12, 13, 15, are hives still in winter cases. We had last year a very good honey harvest—about 180 pounds per colony.

Vienna, Aus., Aug. 25.

TEACHING APICULTURE TO BOYS

BY DR. E. F. BIGELOW

I am sending you a photograph showing the good use I am making of the bees in our experimental apiary. I am impressing upon the boys the lesson that bees are not

quite so bad, at any rate at times, as most people regard them. These boys are the sons of wealthy parents of Greenwich who have a special tutor to care for them and take them around, showing them the interests of nature. They requested that I give them a lesson on bees, and this is their first experience. We opened the hive without the aid of veil or gloves, and the boy just in the rear of the hive passed out the frames to his mates. Though they played around with these bees for an hour there were only two stings in the entire company. One little fellow was quite enraptured with the delights of the little insects, which he viewed for the first time as he sat on the ground gazing into the entrance of the hive. I think this a remarkable object lesson that bees are not so bad as they have been regarded.

Arcadia, Sound Beach, Ct.

A CONVENIENT HONEY-HOUSE AND WORK-SHOP

BY JOHN T. SMITH

The engraving shows my bee-yard and work-shop. In nearly the entire yard I use the Hoffman frame. Part of the yard is run for comb honey, and the rest, some 24 colonies, for extracted honey. Last fall there were 110 colonies in the yard. I lost 50 in the winter, so commenced the season with only 60. I have increased to



A group of boys who have found out that bees can be "tamed."



Back-lot apiary in St. Paul, Minn., that produced from 18 colonies, spring count, over 1400 pounds of comb and extracted honey.

100. Part of the colonies that lived through the winter were weak in the spring; but the strong ones have stored beautiful honey from the white clover.

My honey-house and work-shop is 16x24, all in one room. It stands on cement posts 2 ft. high, 18 inches square at the ground, and 12 inches square at the top. There is also one large post under the center where the circular saw stands. The sills are 8x8 sawed timber, with one cross-sill in the center. The studding is 2x4 and 12 ft. high. The siding is matched, and has two coats of white lead and oil. The walls inside are sheeted with matched flooring. The chimney extends down into the lower room.

The work-bench is by the four windows. As I work I can see all the beeyard. The windows hang on hinges at the top, and fold up out of the way.

I have two doors on the end of the building, and in getting supers ready for the bees I pile them in the left-hand doorway, and from there on to the wheelbarrow for the yard. Also in extracting, the frames are brought in at that door. The cement walk leads up to the right-hand door. By this arrangement I save lots of steps in a season. On the screen-doors the screen extends up 6 inches, with $\frac{3}{8}$ strips of wood to form bee-escapes; also outside the windows, the screen extends up to form bee-escapes.

The upper room has a window at each

end, and I open these in the spring and feed the bees ground meal. I also hang frames of honey from the rafters. The bees soon find their way to it, and do not bother in the lower story where I am at work. The material for the building cost me about \$200, and I did nearly all the work myself.

Bellevue, Mich., July 21.

A LETTER CARRIER'S BACK-LOT APIARY

BY L. E. GAYLORD

I am sending a photo of my yard in the back end of my city lot. I had 18 stands, spring count. I have 44 now. I took off 60 gallons of clover honey and 700 sections. I am a letter-carrier here.

St. Paul, Minn., Aug. 21.

BULK-COMB-HONEY PRODUCTION IN CONNECTION WITH MIGRATORY BEEKEEPING

BY J. J. WILDER

In a previous article I endeavored to answer one of the greatest objections to bulk-comb-honey production in the North by mentioning the use of a non-granulating extracted honey for packing the comb honey. In this article I wish to mention another way in which the same result may be obtained—that is, by migratory bee-

keeping, or moving bees at the approach of winter from the North to the South, and operating them for extracted honey in the tupelo-gum sections, then at the end of the flow carrying them back, together with the honey which has been harvested. The return north should be made in time for the honey-flow there in order that the necessary comb honey for the packing of the bulk comb honey may be produced.

This is not a new idea, for there has been almost no end of letters that have come to me from northern beekeepers during the last few years wanting reliable information about a venture of this kind. But neither myself nor any one else could give this information; and as such a trip would be very expensive, no one has as yet undertaken it; but we are now able to give more reliable information regarding the feasibility of this plan.

The A. I. Root Company solved the greater part of the problem the past season by moving a carload of bees from the tupelo-gum section after the flow, then back north in time for the flow, and thereby harvesting a good crop of honey at both ends of the line. Now the question is, "Can bees be brought from the North down, and the project carried out with good results and profit? Of course, this adds much more expense, and makes the problem a more difficult one; but I have taken up the matter with a few of those

who are very anxious to try the venture, and I here give a letter from Mr. George H. Rea, of Pennsylvania, whose location probably represents what would be about the average distance which would be covered in a trip of this nature from the North to the South. The rates given refer to the Okefenoke Swamp in the lower part of Southeast Georgia.

My dear Mr. Wilder:—Your very kind letter is before me, and I am much pleased with the favorable information that it contains. I know that your information is reliable; and from what you have told me I can see no reason why migratory beekeeping would not pay. You ask me to find out what it will cost me to move a car, and then you can better advise. The Georgia Southern & Florida R. R. have quoted me 75 cts. per 100 lbs., 20,000 lbs. minimum per car. That would make the car cost me \$150 besides my car fare, which would be about \$30. So you see it will cost me from \$350 to \$400 to move the car down there and back again in the spring; and in addition to this will be the expense of my boarding and hauling of bees, etc. The probable expense would be about \$500. Is this estimate too high? What can you tell me about living expenses down there? Will the honey crop, gathered there, from 200 colonies, justify this large expense? I should want the bees to pay not only all expenses, but to make some money for me besides.

Reynoldsville, Pa., Oct. 5.

GEO. H. REA.

I think Mr. Rea has slightly overestimated the total expense from the time the bees are prepared for the trip until they have been returned and set on their stands for the flow in the North. Assuming that his estimate is correct (and surely it is on the safe side), that of the entire expense being \$500, let us leave off the last sentence of his letter. I think that the



Smith's mouse and ant proof honey-house and work-shop.



FIG. 1.—A double-walled, air-spaced hive of an old pattern, used to some extent by F. B. Cavanagh, Hebron, Ind.

good climate here and the successful wintering of the bees would amount to more than the actual expense.

The A. I. Root Company's last carload of bees left the Southeast on May 27, p. 374, and arrived at Medina in time for the basswood and clover flows. By May 27 our spring honey-flow from all sources is over. This includes the flows from tupelo gum and gallberry, which last about 35 days, one following the other without any intermission. The average surplus is not less than 40 lbs. each season. Of course the bees must be in fair condition at least to harvest this amount as an average. Based on my own experience, the net amount of honey from 200 colonies would be 8000 lbs.; and at 7½ cts. a pound net it would amount to \$600. Some seasons the sum might be higher, and now and then there might be a season when it would be lower. Now, this would not be a very good paying proposition at this end of the line; but at the other end it might be more profitable if the bees could be landed on their stands there in good condition, for they would surely leave the South in good shape. The hives could be closely extracted before being moved southward, as the spring ty-ty would give a good flow very early, dur-

ing which they could build up and be in the very best shape by the time the heavy flow came on, and some valuable increase could surely be made while here.

Cordele, Ga.

A HEAVY DOUBLE-WALLED HIVE HAVING SOME DECIDED ADVANTAGES

BY F. B. CAVANAGH

In Fig. 1 is shown a hive which, though far from ideal, has some excellent features, and is an especially good winter hive. It is made of $\frac{7}{8}$ material throughout. The outer case is about 18x20, outside measurements. The inside case, or stomach, as it is called, is 16x17½. It contains ten deep frames about 12 inches deep and 15 long. The stomach has a water-table within $\frac{3}{8}$ inch of the upper edge, which supports it on the outer edge of the wall case, allowing the lower edge of the wall to come within $\frac{1}{2}$ inch or so from the bottom-board. The latter is a plain board the size of the outer case, the entrance, $\frac{1}{2}$ x6, being cut in the lower edge of the wall. There is but a scant $\frac{3}{8}$ between the outer and inner cases. The water-table supports the cover, which is shown resting on the edge just under the comb-honey super in Fig. 2.

In Fig. 2 is shown the comb-honey super in place. When tiering up supers, rims of the same dimensions as the lower part of the cover are used to build up to the proper height around the super. This gives the double-wall effect in both hot and cool weather, which is no small advantage.

In Fig. 2 is shown an attempt to produce comb-honey without separators. In the picture are shown some of the best specimens. We had others not so good.

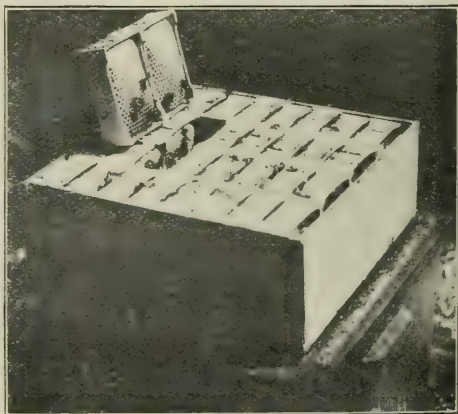


FIG. 2.—Comb honey produced without separators.



FIG. 3.—A cheap hive-stand that leaves room for the toes under the bottom-board.

When I learn the trick it will be time enough to write it. I used $3\frac{5}{8} \times 5$ 7-to-the-foot sections, open on four sides.

Fig. 3 was taken to show our famous I-beam hive-stand, invented by others but original with me. The principal advantages are cheapness, lightness, and a place to put one's toes under the hive when working. Also stray queens can not beguile bees beneath the hive and build combs without being detected, and I believe an open stand rots the hive-bottom less than a closed one.

Hebron, Ind.

HORIZONTAL COMB METHOD OF SECURING QUEEN-CELLS

BY ISAAC HOPKINS

Referring to my letter published Aug. 1, p. 479, and also to the footnote, I wish to say that, if illustrations 1 and 3 had been printed the other way up, as the photo prints were marked, they would have looked much better. As the cells are foreshortened in the photo, they look much smaller than they really were.

PREPARING THE COMBS FOR CELLS.

In the copy I sent I wrote, "I prefer a last-season's-built comb that has *not* been bred in." The word "*not*" was left out when the article was printed, making me say the opposite. By all means use a bright clean comb that has *not* been used for breeding purposes. You will note that I say, "save every fourth row of cells, and scrape out the intermediate

three rows, though the comb in Fig. 1 shows only two intermediate rows scraped out. The illustration shows the comb used in the first trial, which resulted in the jumbled lot of cells shown in Fig. 2. Further experiments convinced me that it would be better to scrape out three rows. KILL ALL EGGS IN THE INTERMEDIATE ROWS.

After cutting down to the midrib beside each fourth row, the intermediate rows scrape out very easily by using the point of a wide bradawl; *but most of the eggs are left behind; and unless these are all killed*

the bees are as likely to build cells over them as over those in the rows, and make a jumble of cells. A small stiff brush, if run along, will kill them. I prefer a splint dipped in wax for killing eggs in cells, rather than a phosphorus match, as I think the phosphorus does harm.

DEQUEENING THE COLONY FOR CELL-BUILDING.

I notice Mr. F. Greiner says, *American Bee Journal* for June, p. 176, "Mr. Dines dequeens about six or seven days before he gives the prepared comb." Our plan, which works all right, requires two for the work. One dequeens the colony chosen, by making a nucleus colony with the queen, two frames of brood, bees, and a frame of food. The rest of the unsealed brood without bees is put into the upper story of a strong colony. The other, in the mean time, is preparing the comb; and when ready it is put at once into the hive for queen-cell building, so that the colony is not queenless for longer than half an hour, and in less than 12 hours the queen-cells are well under way.

RETURNING QUEEN AND BROOD.

Unless we wish to retain the queen in the nucleus colony we return her and the brood to the hive on the fourth or fifth day, usually on the fourth after she was taken from the hive. She, of course, is placed in the brood-chamber with a queen-excluder over the frames, and the cells above, where they mature. There is practically no loss of time, as the queen can



George Edward Newborn, grandson of J. L. Newborn, Snow Hill, N. C. The baby's diet is oatmeal, milk, and honey. He was just two months old when the picture was taken.

lay in the nucleus hive if given an empty comb, and need only be out of the hive for four days.

COMMENTS ON THE FOOTNOTE.

The statement is made that, when more than two dozen cells are raised in one colony, the queens are likely to be short-lived. I say yes, most certainly, if they are raised in small colonies with few nurse bees; but as we raise them in extra-strong two-story colonies in the height of the season, with numberless nurse bees, then there will be 60 or 80 cells containing lots of unconsumed jelly after the queens have emerged, and these queens will be healthy and long lived. Why should they not be? The bees are not unnaturally forced to build cells beyond their inclination by this method; but it is optional with them. Under the conditions mentioned, in the proper season for queen-rearing, there will be a larger number of fine cells built in a natural manner by this plan than by any other I know of.

You say it may be advantageous for beginners and honey-producers who haven't time to learn the intricacies of grafting. I really don't see that there are any difficulties in grafting that can not be overcome in a very short time. There is certainly no trouble without any gain that I can see, unless you count economy in the

number of bees used in raising cells a gain. In my opinion, the grafting system, taken generally, is responsible for more worthless queens than it is possible to calculate. It is possible, no doubt, for as careful a breeder as Doolittle to get the best out of the system; but how many Doolittles are there? Where good eggs are provided, and the cells built over them by the bees in a natural manner in the proper season, one can not fail to get good queens with a minimum of handling and risk.

Auckland, New Zealand.

WHY GRADE HONEY BY ITS COLOR?

The Darker Grades Often the Best

BY HENRY REDDERT

I have often wondered why honey is graded according to the color instead of the flavor. I notice, page 638, Oct. 1, C. W. Ludlow recommends blending to get a uniform color every year. I should think flavor should always be given the preference to color. Why not designate honey as white clover, sweet clover, buckwheat, catnip, dandelion, fruit blossoms, or the name of whatever blossoms it is gathered from? Is it a fact that dark honey is inferior to light honey? Let us analyze it.

The year 1911 was a poor honey year in our district. The spring was cold and wet. Fruit bloom yielded very little. Locust was in full bloom, but the bees had but a few days to work on it, barely enough to keep up brood-rearing. Clover amounted to almost nothing. Dandelion was the only plant yielding a surplus. Now we all know that this plant secretes nectar having the color of the flower, a dark golden hue, called amber, as I understand it. This color brings a second-grade price in the grading rules. But how about the flavor? I have about 90 pounds left, which I would not trade for the best white-clover honey; but remember, I left this honey on the hives until the end of the season, which means that it was thoroughly ripened. Those that had the good fortune to test it, pronounced it the best honey they ever tasted. Color was no object; the flavor is what they wanted.

Locust honey is amber colored, yet I have heard expressions like this: "Honey for the gods." Buckwheat has a dark syrupy color, yet who will say that the flavor is not fine?

Four years ago, all sources failed in this section except catnip, which was very abundant. This honey is very dark—in fact, so dark that a so-called honey expert re-

marked that it was city honey, for out in Indiana where he lived honey was much lighter. He meant, of course, that my honey was adulterated. The fact is, that those local customers I had liked the flavor so well that it was hard to convince them the next season (when most of our honey was white and sweet clover) that the latter was just as good a honey as the former.

We all know that sage honey is as white as any honey on the market. A fellow beekeeper bought several 60-pound cans the year I had the catnip. He and I traded for our own use. He pronounced the catnip honey "*par excellence*." The sage honey was given to one of our neighbors to test. She claimed she liked the catnip (dark) flavor better. To me all honey is alike, provided it is well ripened by the bees. A thick, rich honey sparkling as the morning dew is good enough for any one regardless of color.

I have never heard a foreigner designate honey by color; the flavor is what he mentions. Who will say that our Germans, Englishmen, Scotchmen, and especially our Hungarians (the last named are great honey consumers) don't know good honey? People will buy New Orleans molasses (which is almost as black as coal) only for the flavor. Maple syrup is amber color, and yet who will claim that flavor is not the incentive? Beekeepers have spoiled their own game by advocating color for quality.

Sugar, before we had the present refining process, was yellow, rich in saccharine juices, the very essence of sweetness, but is now white as snow, the best qualities taken out of it. Flour ground in the olden days was amber colored, now white as the miller can make it by taking the gluten, the very elixir of life, out of it. A few years ago I had the good fortune to work with an old experienced chemist. One day he was asked by a catsup manufacturer if he could devise a process to eliminate fermentation. He experimented, with the result that he must take out the ingredients that compose the color of the tomato—as he afterward remarked to me, "The very life of the catsup." If this chemist should take the color out of our dark and amber honey I doubt if there would be much sweetness left. It can be determined only by chemical analysis whether light honey is as rich in sweetness as the darker qualities.

Now what I wish to propound is this: That the consuming public should be educated to prefer flavor to color, thereby setting the darker honeys at no disadvantage to the lighter, and incidentally securing a uniform price to beekeepers in gen-

eral. Beekeepers should also understand that they have no right to ripen honey artificially. Let the bees do this; they are the only ones nature designed for this work.

Cincinnati, O.

[It depends largely upon what the customer is used to. For instance, if the honey "we used to get on the farm" was dark, then the darker grades are usually preferred. On the other hand, if it was light, then the darker grades are not liked as well. Probably the majority of consumers, taking the country over, prefer the milder honey which does not have such a strong flavor as most dark honey has, and yet is just as sweet. We believe our correspondent is right in believing that the color should be a minor consideration compared to the taste.—Ed.]

HOW LOCALITY AFFECTS THE QUESTION OF THE CHOICE OF HIVE

BY C. A. STEVENS

I have been a reader of GLEANINGS off and on for many years, and have been very much amused at the persistency of many of its regular correspondents in the way they put forth their pet hobbies, almost forcing one to believe their method the right and only one. The latest, that of Mr. A. C. Miller, was the best, the way he came back at the Ontario correspondent.

When I started out to become a beekeeper, my father-in-law, Thomas Valiquet, one of the most advanced beekeepers of the Province of Quebec in the 60's and 70's, gave me five colonies of bees (Italians) in Quinby hives, saying that was the best hive yet put out for the Province of Quebec, and that, if I hung to it, and to Italian bees, I would get along all right. For some years I did get along, and had a fine apiary. Moving to Texas in 1882 I could not get Quinby hives there; and as the Langstroth hives were being advocated I changed to that type. So long as I remained in Texas I got along all right; but on returning to Quebec, when I put away 38 colonies the first fall, I lost them all.

My next trial was with the "Jumbo," as this was the nearest I could get to Quinby hives, and I built up a fine apiary again. Then came the Danzenbaker hive. This caught my fancy again, and I bought a lot of them, transferring and cutting my Jumbos down to the Danzenbaker depth. The first year I put 30 colonies into winter quarters in good shape, well stocked

with bees and honey. The next spring I had seven queens, some of which had only a pint or so of bees. They had all starved. I put the seven queens and all the bees there were into one hive and left them to their fate. I had Caucasians, leather, and golden-all-over Italians, Carniolans, Banats, etc. Some time in July I examined them to see what had happened. I found I had a hive full of leather-colored Italians. I tiered it up one by one until it was seven Danzenbaker stories high. In the fall I took off three stories full of honey, leaving the rest for winter. Mrs. S. is also a beekeeper; and, thinking there was too much honey, she took off two more. I fixed the bees on their summer stands, *a la* Miller, and then built a second wall of matched boards all around them, banking them with snow. The next spring the winter broke early; and when I opened them I had a colony full of bees. There was a week of fine weather, then came a heavy fall of snow. When I looked at them again they were all dead—starved to death with not a particle of honey left.

I now had an equipment of over 50 Danzenbaker hives, sections, etc., with no use for them. The next year a neighbor had two colonies of black bees, and he did not want them, so I took them. In the fall I had five full colonies of Carniolans and Italians. Not wanting to throw away my Danzenbaker hives I doubled them up, using two of them for winter quarters; and when I put them in my cellar they weighed 100 pounds—all I could carry. The next spring I put the five out. Two of them, one Carniolan and one leather Italian, were teeming with bees. Two of the others were in fair shape, and the other was queenless, but had a good colony of bees. On the 29th of May the Carniolan swarmed out. I was very much astonished, as there had been nothing excepting the willows for them to work on. When I investigated I found the two Danzenbaker hives full of brood, with plenty of honey, and from ten to fifteen queen-cells in each hive, some of them sealed over. I now had two Danzenbaker hives ready to divide, and a swarm. I moved the two Danzenbaker hives to new stands and put the swarm on the old stand. To-day I took one Danzenbaker section full of the whitest honey I ever saw, and one hive full of the honey—32 sections of 4x5 full, and ten Danzenbaker frames full of the same. There are still two hives with all I can lift ready for winter quarters. That makes three colonies from one, with six hives left for winter, and over 50 pounds of extracted and 32 pounds of sections.

My Italians followed the Carniolans, and I did the same thing with them, making three out of one; but they gave me but little honey.

Our foul-brood inspector was here to-day—the first and only one I ever had visit me in 30 years. I showed him what I had. He said it was remarkable, from the fact that there was but very little honey in Quebec this summer, and that many of the beekeepers were feeding for winter, and had had no surplus. He had been all over the province; had found foul brood in many places, some of it within two miles of me; but my bees have never had it, and I don't know what it looks like. Most of it (in fact all) is where black bees are kept. I keep black bees only long enough to get an Italian queen in their place.

The ideal hive for wintering in Quebec would appear to be two Danzenbaker brood-chambers, thus making a square hive. Mr. Valiquet claims bees, if allowed to cluster where they want to, will be in the center of a hive. That's where mine cluster in the two Danzenbaker bodies—between the two, right in the middle.

St. Lambert, Que., Oct. 1.

BEE PARALYSIS A MOST SERIOUS DISEASE IN AUSTRALIA

Some Glimpses of its Ravages, Showing that it is Not a Simple Trouble to Deal with; Italians Not Immune

BY MAJOR SHALLARD

On p. 332, June 1, Mr. Samuel Simmins has something to say on the subject of bee paralysis. There is only one possible crumb of comfort in the article, and that is where he mentions "a warm curative solution." What is the solution? I want it if it will cure bee paralysis, and so does practically every beekeeper in Australia; but I "ha' me doots." He states that N. S. Wales was visited by this trouble in 1894, and other parts of Australia in 1906. I should like to say that these diseases, though perhaps the same, had different symptoms.

The first I knew of the trouble was when it broke out in California. It was known then as the California trembling disease.

A little while after, it appeared on the Hunter River, N. S. Wales, and afterward spread all through the colony. The affected bees used to come out of the hive, spread their wings with a trembling motion, make short hoppy flights, and eventually give up the ghost. We always got the

trouble in very hot dry weather, and I used to keep a boy going around with a very weak solution of salt water. He used to lift the lids and dash a cupful over the frames of the hives. I used to call this "heat paralysis," and it never did a great deal of harm.

Next we got a more malignant form of the trouble. The bees used to swell up and die in such numbers that there would be from a cupful to a dipperful in front of each hive each day. No colony could stand this strain, and many soon ceased to exist. We used to requeen to effect, if not a cure, at least some mitigation. We were told the disease was in the queen; but I think it was a case of the blind leading the blind.

When I had been keeping bees twelve months I knew all about it, and was ready to put the whole world right. When I had been at the game twelve years I did not know half as much, and I was not at all sure of the correctness of what I did know. Now I have been at it for more than double that time and I know less than ever. One thing I am very sure about, and that is, that I know nothing about paralysis, and that is why I hailed with delight the statement in GLEANINGS that some of your scientists are investigating the disease. It is, without a doubt, the greatest curse that ever struck the Australian bee world.

We know nothing about it; we never know when it will hit us, nor why it comes, nor any thing about it. If a man had asked me twenty years ago how many colonies I had I would have said 800, and I would have been sure about it; but if one asked me now, and also asked me if I were sure, I would become suspicious that he knew something, and I would want to get around the farms soon to make sure. A man never knows what he has. He might have 1000 colonies now, and not 200 in a month.

For instance, one of my farms was giving me an extracting of a little over two tons every month up to last March. About the end of April I went out with the gang to extract again. Not only was there no honey to extract, but the colonies had dwindled until most of them would cover only about three combs. We moved on to the next farm, ten miles away, and the conditions were the same; and a month before they had been rolling the honey in wholesale. Yet the farm I originally started from was all right, and showed no signs of paralysis. The bees were not dead about the hives. There were a few

odd bees hopping about. They had simply disappeared. They went into winter quarters in this state, and I am expecting a big mortality in the spring, which, I am glad to say, is not far off now. I have known a whole farm to die out in a month; and in all of these cases there is any amount of honey in the hives, and often several frames of brood, but no bees.

At one time we only had to see that each hive had enough stores, and we were safe; but now we are never safe for a single month. No wonder I am getting baldheaded; but still I don't growl, you know—just "count your many blessings," and keep scratching along. If this were all the puzzle there is in the matter it would be bad enough; but how do you account for the fact that you can keep bees in one place, and they hardly ever get paralysis, and yet only four miles away you can't keep bees because they get paralysis, and die right out without constant attention? How do you account for the fact that a farm (my own) will get paralysis, and need constant watching, and another, only two miles away, gets none at all? I had a lot of rivals start in the bee business when they saw me getting crops; but they started in this paralysis country, and all the farms died out the first year. I know one man whose bees always had paralysis more or less. He moved some of them into a splendid location so far as bee pasturage was concerned, but, although he gave them constant attention, they nearly all died. I know another man who had over 200 colonies in splendid order on the old site; but he got dissatisfied with the quality of the honey he was getting, and moved the lot to within two miles of the former man. He met the same fate. They all died from paralysis. If it is the feed, why do not both farms, only two miles apart, suffer? or why don't the two farms, four miles apart, suffer? This does not apply to just one small portion, but to parts of Australia hundreds of miles apart. Only last March my bees, 400 miles south of here, were in splendid order, but they suddenly died off, leaving them all very weak to go into winter quarters.

I have been patiently waiting for some other microbe to come along and eat this paralysis fellow up; but he is a long time coming.

To say, as Mr. Simmons says, that bee paralysis will never make headway where the owners use Italians is not correct. I wish it were. I have been keeping bees for my living more than half my life, and I

have always had Italians, and the other people I have mentioned have Italians also; but it has not checked the disease. He says, "It is one of the most simple diseases to deal with." How I wish that were true!

He says Mr. McDonald introduced it by buying infected bees. I will give an instance: On one occasion it suddenly attacked the farms of three beekeepers (queen-breeders whose bees had never had it before). They were all located within a mile of each other. The first one whose bees that got it rushed over to the second, and found that it was there too. He went back to his own farm and fought that disease for a fortnight, when it disappeared. He then, having nine, called on the third beekeeper, who protested loudly that he had not had it; but as he explained to me a couple of days after, his colonies were very weak, and his yard had all been swept with a broom.

Now this visitation hit these three farms at one time, practically on the same day, at one time. Mr. Simmins infers that the disease can be cured by a suitable medicinal agent. Will he give us this agent, or will any one else who knows? I am quite satisfied that, although I have been living with it for years, I know nothing at all about it.

Mororo, N. S. Wales.

POSITION NUMBERED, NOT HIVES

BY H. F. HART

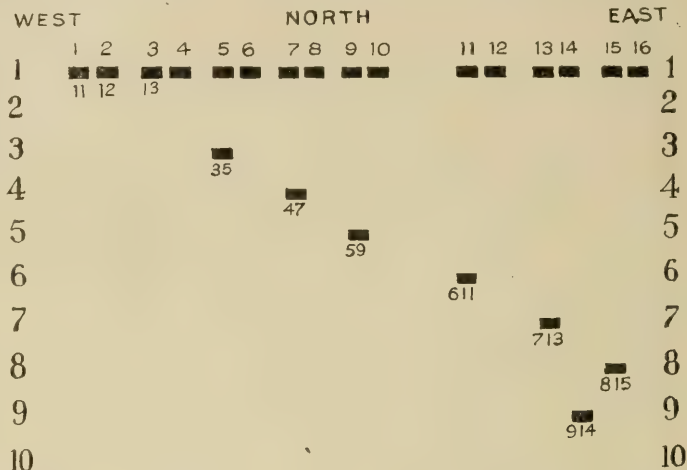
While my system of hive-numbering is similar to Louis Macy's, page 489, Aug. 1, my row number comes first, hive number second; first hive in first row is 11; second hive 12, and so on.

My apiary is arranged in blocks of 10 rows of 10 hives in each. The hives are arranged in pairs, put on stands made of 2 x 6 scantling 4 ft. long, end to end, not side by side, and facing east and west. This allows one to be always working on the south side of the hive, with the sun at the back shining on the frame. But in this way the entrances are further apart

than they would be by Mr. Macy's plan. The alleyways are freer of obstruction for the wheelbarrow.

To facilitate numbering the position of the stand, the number of the row is painted on the fence or a stake, and the hive number is also painted in the same way.

The diagram below shows the arrangement of the hives; and the figures under east and west show the initial or row number on the fence or stake; and the numbers on the north show the hive number painted in the same way. The hives are spaced 6



ft. apart between entrances, and 6 ft. between in the rows.

I have been using this arrangement of hives for the past five years, and the numbering for ten or twelve or perhaps more; and after laying out some twelve or fourteen apiaries in the last 25 years I would not change either the method of numbering or the plan for the hives. I have this method in use in an apiary of 350 colonies now.

Allenville, Ala.

A STRONG COLONY WITH PLENTY OF STORES WILL STAND ALMOST ANY KIND OF WINTER

BY L. M. BROWN

I was a disciple of Mr. A. I. Root when he took an active part in apiculture in the 80's, and I should like to give the "gist" of some of his advice on wintering.

Have booming strong colonies, then select four combs holding in all at least sixty pounds of honey, and crowd the bees down on these four combs, using a chaff division board on each side.

I formerly had the two-story chaff hive

and filled the upper story with a chaff cushion, and I found by experience that a good colony so arranged would pull through ninety-nine times out of a hundred. Talk about condensed moisture! A strong colony so cared for has no room for anything like that. In some of my weaker colonies I found some condensed moisture, but not enough to hurt any thing.

The new double-walled hives are an improvement, I believe, over the old two-story chaff hives and will answer just as well; but let me explain that Mr. A. I. Root used to insist on oat chaff. Take a box of oat chaff and another of wheat chaff, and on a zero day thrust your hand down into each and see which hand feels the more comfortable.

Here in the Salt River Valley our bees keep up brood-rearing through October and commence it again in February. I generally divide my bees toward the last of February. I am speaking now of the Salt River Valley. There is not a day through the winter when our bees can not fly about if they wish to, although in mid-winter there are sometimes two or three days of rainy weather which confines them.

Apparently, there is no foul brood in this valley, but no one should imagine that we never have any troubles. I divided my colonies on the 23rd of February last spring, and at just the time for the young virgin queens to fly, countless thousands of bee martins filled the air, and but a small per cent of the young queens ever came back. This year I intend to buy what few queens I need. These martins were here twelve or fourteen days, and all of my colonies suffered, some of them becoming very weak in field bees. But even if there are no bee martins to catch the young queens, I think it is more profitable to buy queens than to try to raise them here, as there are so many drawbacks to a successful mating.

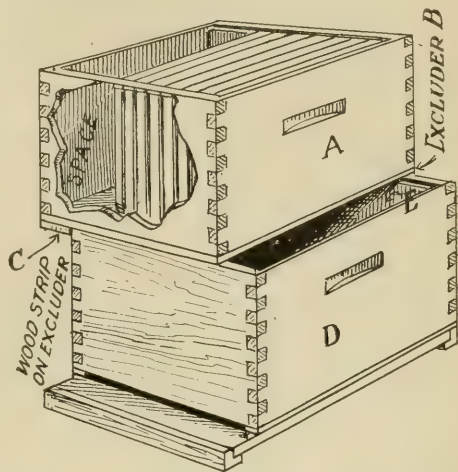
Phoenix, Ariz.

A NEW WAY TO SIFT THE BEES TO FIND THE QUEEN

BY B. KEEP.

Among all the methods proposed for finding the queen, there is none more nearly certain than "sifting." The method of doing it is about as simple and easy as can be. Fix up a wood-frame zinc queen-excluder, with a thin three-inch wood strip, to be attached under one long side of the frame so as to close that much of the perforations, measuring from the outside

of the frame. This is the only extra preparation necessary. Now lift the hive body (containing the colony to be sifted) off its bottom-board, and set an empty body in its place. Lay the prepared excluder on this empty body, having the edge of the three-inch strip against the outside of the body. This leaves an open space along the opposite side wide enough to pass a brood-frame through easily. Set the hive body containing the brood-frames and bees upon the excluder exactly. Remove the outside frame from each side, shaking and brushing the bees back upon the remaining frames. Set one of these frames aside, and put the other into the body below through the opening before mentioned, and push it along on the rab-



bets out of the way. Now move the brood-frames in a mass over to the hive side next to the opening before mentioned; then, beginning with the frame furthest from the said opening, shake and brush the bees off and down on the excluder, one frame after another, putting each, as cleared, down into the under body, pushing each and the preceding frames along out of the way to admit the next. Last of all, put in the frame previously set aside. If care is used, the brood-nest will be transferred from one body to the other without in any way changing the arrangement of the frames.

The smoker should now be used very moderately to drive the bees down sufficiently to see the queen, if she is there. It is not necessary to shake, drive, or smoke the few remaining bees. Just set the body to one side, and they will soon leave. If there is any simpler way to sift for the queen, let us know it.

Hoboken, N. J., April 24.

Heads of Grain from Different Fields

Getting Rid of Drone Comb; the Purpose of the Follower

Does brood comb ever get old? If so, should it be replaced by new foundation?

After an extracting-comb is used repeatedly, should it be changed for a new one?

If so, what is to be done with the old comb? On the other hand, are the old combs more valuable for extracting purposes than they are if transformed into beeswax?

If an old comb happens to become a drone comb at a time when worker-cells are urgently needed, can the drone part of the comb be cut out and a piece of worker comb fitted in?

A short time ago I purchased five fairly strong colonies. The man who sold them to me is not a beekeeper, having bought the bees with the place. How can I tell whether they are the first or second swarms? My colonies are all Italian. What do you think of fig trees for the purpose of shading the hives? I expect to establish my apiary somewhere on the Indian River.

As I am deaf, please tell me how I can tell whether or not the bees are cross.

How often should each hive be examined? How can I tell whether the honey-flow ceases suddenly or is decreasing gradually?

Do I understand that there are no regular bees in robber-traps?

Please explain the value of the follower and the division-board.

Orlando, Fla., Sept. 24.

L. P. JONES.

[If your combs are straight, and if they do not contain an undue proportion of drone-cells, there is no object in cutting them out and replacing with comb foundation unless there has been some disease about your apiary, such as foul brood of either type. If this is the case, it pays to renew the combs, of course, in order to prevent the disease from breaking out again; for the germs of the trouble lurk in out-of-the-way places about the comb in small amounts of honey in some of the cells, etc. It depends upon circumstances whether all the combs should be renewed at once, or whether only a few at a time. If there is no disease, and you are merely wishing to replace crooked or drone comb, you can replace one or two at a time with comb foundation. The best time to do this is in the spring or early summer when the bees are building comb. In this way you do not obstruct the work of the colony to any great extent. If you have a large vat into which you can throw the combs while they are in the frames you can generally get them free from the wires, leaving the wires still in the frames, and then imb the same wires into a new sheet of foundation. If you have no way of melting the combs out of the frames in this manner, you may find it more convenient to cut the wires and then rewire the frames after the latter have been scalded and made otherwise clean.

An extracting-comb, if it is straight, and free from disease, hardly ever needs renewing. In fact, the old combs are tougher and even better than new ones.

You can sometimes cut out drone-cells and fit in a piece of foundation; but the bees are likely to build drone-cells again around the edges of the patch, so if a comb has very many drone-cells it pays to cut it out entirely, melt it up, and replace with a full sheet of foundation.

From the description of the bees that you bought, we can not say whether they are first or second swarm. About the only way to tell would be to judge of the comparative strengths of the colonies; for if they completely fill the hives so that the hives are boiling over with bees, as the saying goes, it is probable that they are first swarms or parent colonies that have cast but one swarm.

Fig-trees would probably be all right for partial shade, although we do not know that we have ever seen them so used.

If the bees are cross, you can tell very quickly by the way they fly up and attempt to sting when you are handling the combs.

It depends on circumstances as to how often a colony needs examination; but ordinarily it should be looked over once in two weeks any way,

to make sure all is right. When the honey-flow suddenly ceases, the bees become much more irritable, and the bees stop flying into the hives in that industrious manner that they have only when they are gathering honey.

Robber-traps may catch a few innocent bees as well; but they get the robbers mainly, and prevent them from flying.

The follower in a hive should be used close to the outside frame when there are not the full number of frames in the hive, to prevent the bees from bulging that comb. It is also very convenient when the full number of combs are in the hives, for it is easily removed, and then there is space to pry the other frames apart. If the frames completely filled the hive, it would often be difficult to remove them. The follower is also sometimes called a division-board. A chaff division-board is a thicker one padded with chaff for use during the winter as additional protection.—ED.]

The Shaken-swarm Plan; Has it been Abandoned? the Doolittle Method

As I desire to produce comb honey exclusively, and also to establish an out-apiary soon, I have for some time been studying the best methods for operation, and am very much impressed with the plan given by Doolittle in his "Year's Work in an Out-apiary." But in the bee journals of the past few years, some doubt has been thrown on the shaken-swarm method previous to preparation for swarming. This is Doolittle's strong point, I believe. In view of the fact that he did this work during the years 1905 and 1906, I should like to know if the following years' experience on his part, or, in fact, on the part of any large apiarist, has proven this policy to be "laid on bed rock." If there are any modifications of his plan as then outlined, please let us hear of them.

Toronto, Ont., Sept. 16. CHAS. E. HOPPER.

[The shaken-swarm method is just as effective in every way. It is true, there has been less said about it in the bee journals, and possibly that fact might make it appear that no one is using it now; but, as a matter of fact, we believe that some of the best honey-producers in the country are still using it. It is invaluable to the professional man who has to be away from the bees practically all day, because he can practice it at any time that is convenient—on Saturday afternoon, early in the morning, or in the evening when he is at home; but there is no use in attempting it until the bees have made some preparation looking toward swarming. Mr. Doolittle makes that point quite clear.

With regard to Mr. Doolittle's having tested out his method during 1905 and 1906 if we remember correctly he did try it out with practically the same results. But we may say this, that the Doolittle method of shaking swarms can not be carried out very satisfactorily unless there is a fall flow like buckwheat. You remember, if you followed out the method, that Mr. Doolittle arranges to have a large number of combs of sealed honey in the fall. These he carries over until next year, and then gives to the bees in order that they may feel "rich in stores."

With regard to the question of whether others have tried this same method or not, we may say that we have had a number of reports from those who have tested it; and wherever there is a fall flow of honey the method seems to work out well in the hands of others as well as those of Mr. Doolittle. In this connection we should be glad to get reports from those who have tested out the Doolittle method of producing comb honey as well as controlling swarming. Surely, during all these years, there must have been a very large number who have tried it, and can, perhaps, now give us some very interesting data.—ED.]

Eucalyptus Burned

Brush fires swept away the eucalyptus forests last autumn all through this district, and ruined the prospects of this season's honey crop, besides burning 15 colonies of bees with abundant stores.

Hahndorf, South Australia, Aug. 7. J. J. DARBY.

Is the Fact that the Bees Gather Pollen Proof that they Have a Queen?

I have had some success with my bees. A swarm issued Sunday, June 30. Four days later I removed two supers full of clover honey, but eight of the sections were not thoroughly capped. I have just taken a super from the parent hive. The honey is a bright yellow, which I presume is sunflower, as there is quite an abundance of this in this vicinity, and it yields well. Asters and goldenrod are not so plentiful. Ten days after hiving the swarm the bees were working on the eighth frame. Three days later they were filling out the foundation on the tenth frame. I then put on the remaining super. I thought that last super would come off full too, but not so. The best the bees could do was to give me four boxes fairly finished with a little in seven more.

I have given two-thirds of my honey away to my neighbors. They have all come back wanting to buy more. When I told them there was no more, and that they could get it at the grocery, they all said that they didn't want that kind, as it was manufactured honey!

When removing the first two supers no honey-board nor bee-escape was used. I had a troublesome time getting rid of the bees. I smoked, shook, and brushed them until I was tired. With the last two supers I used a Porter bee-escape and board, which I found much better. I am now preparing for winter. Both hives are completely filled with bees, with the brood-nest full of stores.

Is it not a sure sign, when pollen is coming in, that the queen is laying without opening the hive? Brooklyn, N. Y., Sept. 25. DENNIS HEWITT.

[When bees are bringing in pollen it is almost a sure sign that they have a queen; but it can not be regarded as a positive sign, since there are occasional reports of queenless colonies that gathered pollen.—ED.]

Fermentation of Comb Honey

Some of the beekeepers in this vicinity have had much trouble this season with fermentation of comb honey. None of us have ever had any difficulty of this kind before. I have found considerable fermentation in the hive where all of the honey was thoroughly ripened. All of it was of a light-amber color. None of the dark poplar, clover, or sumac fermented. We are at a loss to know the cause. Mine was kept in a warm well-ventilated place as heretofore.

Helena, Ark., Oct. 7.

S. A. FULLER.

[This is a little unusual, although several times before we have heard similar reports from different parts of the South. Who can throw some light on the question?—ED.]

"Automatic" Hiving, Etc.

On page 271 is a photo of a man hiving a swarm automatically, which reminds me of a brakeman on the train from Syracuse to Auburn telling me he set a new hive at Lyons, N. Y., close to the trunk of an apple tree in the morning before leaving, and in the evening, on his return, he learned from his wife that a swarm came out that day, and clustered on the said trunk low down, and gradually crawled into the hive.

Mrs. Luter, of Beaverton, near Orvillia, left her 13-year-old inexperienced uninterested daughter home one holiday, July 1, to watch the bees. Of course a swarm came out, and it clustered low down on a currant bush, so she donned a pair of fur mitts and a miserable veil and hat, and set a hive about a yard away. Of course, they did not find it. Little Britain, Ontario. FERGUSON WHITESIDE.

How Much Syrup Must be Fed to Make 20 Lbs. of Sealed Stores?

I have several hundred colonies of bees that need feeding more or less, and I should like to ask how many pounds of feed would have to be given to a colony to supply it with 20 lbs. of ripe stores. If it is not too late, how about the following proportions? Boiling water, 1 part; cane sugar, 2 parts; one-third as much honey as water. I should like to have you furnish me with some figures as a

basis to work on, and hope to hear from you at once.

Janesville, Minn., Sept. 16. E. L. HOFMANN.

[It would take about 23 or 24 pounds of syrup, made one part water, two parts sugar, and one-third as much honey as water, in order to make 20 pounds of ripe stores. A well-evaporated syrup will contain about 20 per cent of water and 80 per cent of sugar. But a syrup would not be too thin if it contained 25 per cent water and 75 per cent of sugar. In that case you would not need to mix quite so much of the syrup made on the formula mentioned.—ED.]

Second-hand Kerosene-cans Seldom Used for Honey in Australia

On page 455, July 15, Major Shallard says, "Practically the whole crop of Australian honey is put up in second-hand kerosene-cans." Now, I think Mr. Shallard must be quoting from what was in vogue 12 or 15 years ago, and not at the present time. I also think it is unfair to the Australian beekeepers to have the idea conveyed that we are slipshod enough to put up with the fussing with second-hand kerosene-tins when we can procure good new tins, made purposely for honey, and the little extra expense would be easily offset by the looks of the package and the extra price procured. I feel certain that, if Major Shallard makes inquiries of all the large dealers and commission agents who handle the bulk of the Australian honey, he will find that easily 75 per cent of the honey is put up in tins made expressly for honey. I know of one firm in New South Wales that turns out thousands upon thousands of lever-top honey-tins every year, made exactly like the kerosene-tins in construction, but without the lettering on top denoting that they were intended for kerosene.

Perhaps the major has, on seeing tins of this class on the market when filled with honey, taken them, in error, to be second-hand kerosene-tins by their looks.

I have not time for second-hand tins of any kind myself.

How do you think it would go under the pure-food act if the beekeepers used tins that contain, we will say, Pratt's motor spirits, with the name of contents stamped in the tin, by filling the same with honey and labeling it to that effect? Don't you think it would be misrepresenting the contents?

Stroud, Australia.

WILLIAM BARNES.

A Tribute to R. L. Taylor

I was profoundly grieved to note the death of our old friend R. L. Taylor. He was a rare man—as a statesman, gifted, alert, incorruptible; as a beekeeper, one of the very best; as a citizen and friend, invaluable. It was my wont to visit him and to receive visits from him. I never parted from him without a feeling of sincere admiration, both for the man's ability and his upright character.

I wish to express through GLEANINGS my personal loss, as also my regret that the beekeeping fraternity and the country are henceforth to be without his valuable services.

Sacramento, Cal., Sept. 26.

A. J. COOK.

State Commissioner of Horticulture.

"Coffee A" Sugar No Longer Sold

Referring to page 545, Sept. 1, please tell me what "coffee A" sugar is. Dealers here don't keep anything by that name, but they keep "A" sugar and "C" sugar, both kinds brown. Please let me know soon, as I want to fix up some candy for a few light colonies as soon as possible.

Sterling, Col., Sept. 30.

T. J. LANDRUM.

[Coffee A sugar is the old name for the best white sugar that was known years ago. But since granulated sugar has come upon the market it has supplanted the "coffee A" sugar entirely, so that probably you will not be able to buy it of any of the dealers in your locality. Generally speaking, you would be able to use granulated sugar in any place where "coffee A" is called for. "Coffee A" sugar was granular and white, just like granulated sugar, only it had more moisture in it. The granulated sugar of to-day is perfectly dry, and remains so.—ED.]

Carbon Bisulphide Better than Sulphur

By putting all of the combs from dead colonies into a small close room before they had been exposed to this season's moths, and smoking them thoroughly with sulphur three or four times, the moths have not troubled them except in a few combs. I have looked each comb over separately, after smoking, and have found a number of little dead worms, and from six to a dozen big live worms that the sulphur fumes did not reach. So I have concluded that it will be necessary to look over each comb carefully, and pick out all live worms if I wish to keep the combs from being destroyed. Most of the combs in which I found worms I had taken from hives that were used for bees this summer. I had put them on top to let the bees take out the honey. I believe that if no comb were exposed outside of the tight room after early spring the moths would not bother the combs during the summer; but I would not risk them without an occasional smoking with sulphur. MRS. L. C. AXTELL.

Roseville, Ill., Sept. 24.

[The writer of the above is one of the older beekeepers of whom there are now so few left, and years ago was a frequent contributor to these columns.]

It is probable that the fumes from carbon bisulphide, being somewhat stronger, would do rather more thorough work in fumigating; for, as a usual thing, one application, if the room can be kept very tight, is enough to kill all the larvae of the moth. If there are not too many combs it is better to put them all into a large box which can be covered up air-tight, and put the liquid carbon bisulphide in a shallow dish at the top under the cover.—ED.]

Wintering in a Cellar

For those who winter their bees in the cellar, and who do not like to have the cellar littered up with dead bees, the following may be of interest:

Make a frame four inches deep, the size of an 8 or 10 frame hive. The ends should be solid, and inch strips should join the ends, leaving a space on each side 2 inches wide and 18 inches long, to be covered with wire cloth. This allows plenty of air, and prevents the bees from scattering all over the floor, and still there is plenty of room at the bottom for dead bees without any danger of stopping up the opening. The frame should be set on a flat board without any entrance. This, of course, would call for considerable work where the hives are stacked; but in the spring the hives are placed on the regular bottom-boards, and all dead bees are left in the frame.

Dr. Miller, p. 313 of his book, "Fifty Years Among the Bees," speaks of the odor of dead bees. This is something I have never noticed.

INCREASE FROM TWO TO NINE COLONIES.

The past year has been a very good one in St. Paul and vicinity. White clover yielded plentifully, and the fall flow was very good. All beekeepers report good crops, and increase in some cases doubled. Our own two colonies of last spring increased to nine, with about 325 lbs. of honey from three colonies. We fought successfully American foul brood in three colonies. We will put the bees into the cellar with plenty of stores, and hope for another good year.

St. Paul, Minn.

HARRY G. BRANT.

[Several years ago Mr. Orel L. Hershisser, of Kenmore, N. Y., described a cage arrangement similar to the one you mention for use under the hives in the cellar. A number of others have tried it since, but with not very good results.—ED.]

Locating Hives in Pairs

In commenting on Mr. Fred White's article, page 601, Sept. 15, you say, "Old queen-breeders recognize the importance of having each hive so distinct in its location that the virgin will have no difficulty in finding her own home." Will you please discuss this further? I have little room on a back lot.

Oklahoma City, Okla.

R. S. SATTERFIELD.

[The very best plan in locating an apiary is to have the hives located in pairs, and then make sure that the pairs are not too close together. In a small yard this practically does away with any trouble due to virgins mistaking their hives. In a larger yard

the hives can be located in groups of four, two pairs back to back, with just enough room between to walk around. This is really about all that needs to be done by way of precaution, although some beekeepers go so far as to have different-colored hives, or have the fronts of the hives at least painted different colors. It is a question, however, whether this plan is any better than merely locating the hives in pairs as stated.—ED.]

Will Honey Ripen in Unsealed Cells?

The honey-flow has now ceased, and there are many combs containing honey in unsealed cells. Will this honey be ripe if left on the hive a week after the honey-flow, or can it be carried into the honey-house to ripen in the combs artificially?

Northfield, Minn.

ANDERSON BROS.

[There is always some question about the condition of honey that is not sealed. If it can be in the hive a week it is very likely that it will be sufficiently ripened; but an exception to this would be if the colonies were not quite as strong as they should be, or if the weather is cold and damp, at which time we should be afraid that the honey would be too thin. Under such circumstances, if you can not leave it in the hives any longer, take it out and leave the combs in a warm, dry room where a current of air will pass over them constantly. This will tend to evaporate the honey further so that it will be fully ripened.—ED.]

Stings Relieved a Man who Had Suffered for Years

Like C. M. Talbot, Portland, Me., whose letter appears Sept. 15, p. 601, I am a believer in bee-stings for gout and rheumatism. I have attended bee conventions, and invariably have I met those who have been afflicted, and have had a permanent cure by means of bee-stings. Several have come to me for treatment. One man in particular who was strong and healthy-looking, had not worked for three years. He had tried numerous doctors, and had then just come back from the hot springs of Arkansas, but could not get any relief. It was three years ago last June. He came to me for the bee cure. To the best of my recollection he came about every third day for treatment. I applied from twelve to twenty stings each time for three weeks. After that time he was able to follow his old occupation as coachman, and is still on the job, having taken no medicine, and having felt only a light attack of rheumatism since. Before the winter sets in he intends taking a light treatment.

Germantown, Pa.

WM. H. SHINGLE.

Bees Eaten by Chickens

Having kept several colonies of bees in my poultry yard for the past twelve years I have noticed every year that some of my chickens begin to eat dead bees. Later they seem to prefer the drones, and still later in the season they simply stand by the hives and snatch off one bee at a time, slam it on the ground, peck at it once or twice, and then swallow it. Finally, both old and young chickens acquired such an appetite for bees that I had to fence off the chickens. I have seen the bees attack them, but the chickens simply twisted their heads around, looked until they found the bees, and picked them off.

Concord, N. C.

W. D. YORK.

Chickens that Eat Pollen-laden Bees

During my 35 years of beekeeping I have had probably 25 cases where chickens would eat bees at the hive entrance when bees would come in heavily laden with pollen. I think they were after the pollen. I have never known chickens to eat bees willfully.

Milano, Texas, Aug. 23.

G. W. BEARD.

Dead Bees in a Well 30 Feet Deep

Bees are reported to have gone down 70 feet into a well after water, Stray Straws, Oct. 1, p. 612. Undoubtedly bees will go anywhere they can after honey or water; but if they go down 70 feet into a well, they are almost sure to chill and not to return. This fall we cleaned a well only 30 feet deep, and found a large quantity of dead bees.

Boicourt, Kan.

D. C. ANDERSON.

Our Homes

A. I. ROOT

When the Son of man cometh, shall he find faith on the earth?—LUKE 18:8.

For what glory is it, if, when ye be buffeted for your faults, ye shall take it patiently? but if, when ye do well, and suffer for it, ye take it patiently, this is acceptable with God.—II. PETER 2:20.

Father, forgive them, for they know not what they do.—LUKE 23:34.

Let all bitterness and wrath and anger and clamor and evil speaking be put away from you, with all malice; and be ye kind one to another, forgiving one another, even as God for Christ's sake hath forgiven you.—EPH. 4:31, 32.

Of course I can not tell how many professing Christians and devout followers of the Lord Jesus Christ are feeling sad—yes, very sad—to note the lack of Christian spirit shown by the various candidates for the presidential chair at this very time. If there is any time in the world when the candidate for an important office should set a good example by showing before the world a gentlemanly and Christian spirit, now is the time. Once more, if Christianity and a Christian spirit is ever needed, it is needed just now. On some of our coins we read, "In God we trust;" but are we not *really* trusting in the biggest fighter? If the fighting were altogether for righteousness, say for the destruction of the liquor business, we might demand the best fighter; but even then we need one like Gideon who was fighting under the banner of the great God above. If I am correct, President Taft has never professed to be a member of any church, although we have been told his leaning is toward the Unitarian faith; and I wish to say to his credit that he did, at least at first, show much of a Christian spirit. I rejoiced to hear him come out plainly before the world and say he *does not drink*, and that in his opinion a President of the United States ought *not* to drink. Roosevelt has, in some of his addresses, said some very good things on the side of Christianity; but, oh dear me! what an example he has set before the people of our land, especially the younger ones! I can not think it possible that one who lives a pure and spotless life before God need ever indulge in such invectives as Mr. Roosevelt has been doing continually. I think that Christian people as a rule have all been pained to see the woeful lack of the Christian spirit between the two great candidates for the presidency. Do we really believe the little motto on our coins—"In God we trust"? Right here I recall that Mr. Roosevelt made an attempt to have this legend removed from our coins; but, may the Lord be praised, the protest from the Christian people, or

I might say from a Christian nation, was too great, and the reading still stands.

Woodrow Wilson, up to the present time, has shown a better spirit than either Taft or Roosevelt, so far as I can learn; but my complaint against Mr. Wilson would be for his faults of *omission* rather than for those of *commission*. While everybody knows, and the whole wide world recognizes, that strong drink at the present time overshadows every other evil in our land, he is silent, evidently handicapped by the party he represents.

In a recent issue I gave the platform of the Prohibition party. Now, this platform is all that can be desired, for it breathes the spirit of "the Lamb of God that taketh away the sin of the world;" and in response to friend Doolittle and others I have been reading Chafin's addresses, and much of the *Vindicator*, *Am. Advance*,* and *Clean Politics*, all Prohibition periodicals. Surely, thought I, I shall "find faith on earth," and brotherly love, in these periodicals; but in sadness I am obliged to say that, in this fierce scramble for office, I see that same unchristianlike spirit shown toward other candidates. I have longed—yea, hungered—to see something of the spirit quoted in our texts. Let me illustrate:

Our pastor in his sermon, last evening, related to us a beautiful fable. As nearly as I can recall, it was something like this: One bright morning, just at the break of day, a gravel walk and a little plant called mignonette were supposed to be having a little talk. The mignonette said to the gravel walk, in a cheery way, "Good morning." The gravel walk replied, "Good morning" in return, and then added, "My little friend, what makes you so bright and cheerful and full of fragrance to-day?"

Now listen to the reply:

"My good friend, I am bright and cheerful and full of fragrance because I have been *trodden upon*."

"Trodden upon?" replied the gravel walk. "Why, how should being trodden upon

* By the way, I am pained to see in the *American Advance* of Oct. 5 a hideous cartoon of Taft Wilson, and Roosevelt. Of course, it is along temperance lines; but I feel sure that the earnest, sober Christian people of our land feel as I do that the President, and, for that matter, a vice-president of the United States should never be cartooned. Even if we do not indorse and in all things respect the *man*, shall we not at least respect the sacred office he has been chosen to fill? "There is so much good in the worst of us, and so much bad in the best of us, that it hardly behooves any of us to talk about the rest of us."

make you happy? I am trodden upon, perhaps, more than any thing else in the world; but the treading only makes me harder and harder."

At this speech the little mignonette nodded in the sunshine, which just then poured over them, and said, "Being trodden upon brings out my fragrance. In this way it makes me happy."

Now, friends, *you* who profess to be live Christians, does being trodden on bring out the fragrance of *your* Christian life? In Luke 6:22 and 23 we read, "Blessed are ye when men shall hate you, and when they shall separate you from their company, and reproach you, and cast you out as evil for the Son of man's sake. Rejoice ye in that day, and leap for joy, for your reward is great in heaven."

Let us now see how this promise fits. When Roosevelt turned against his old friend and comrade in many a political bout, had it the effect of calling out from the President a Christian spirit that was like fragrance before this sin-stained world? I am afraid not; and when people told stories about Roosevelt because he aspired to another term, did he in like manner breathe the fragrance of a Christian spirit and a mind so great that he kept smiling, and kept gentle under severe provocation?

Lest you think I am all the while defending the Anti-saloon League, let us come a little near home. I made a clipping from these Home papers for Sept. 15, and sent it to the editors of both the *Vindicator* and the *American Advance*. They replied courteously, and in a rather better spirit than I expected; but as a matter of course they claimed that the Anti-saloon League was wrong and that they were right. I made extracts from some of their letters and forwarded them to the officers of the Anti-saloon League. Now, wait a minute. The most of the officers and speakers, and especially those who occupy important positions in the Anti-saloon League, are ordained ministers, many of them having for a term of years preached the gospel. Did I find the Christian spirit in their replies that I have long been hungering for? May be I am demanding too much. I will tell you what I wanted to see and what I wanted to hear, and that was something like this: "Father, forgive them, for they know not what they do."

As I have said before on these pages, if the Anti-saloon League and the Prohibition party, the Endeavor Society, the Y. M. C. A., and the Christian people, would unite, the liquor-traffic and the saloon busi-

ness would go down like a rocket after it has exploded in the air. For years past I have begged and pleaded for brotherly love between the temperance forces. I can forgive people for not thinking alike. There is not a single church in our land where all the members agree, and think alike in *every* thing; but they hold together and hang together because of that charity that "thinketh no evil and is not easily provoked."

Do not, dear friends, think for a moment that I am posing as a model Christian. God knows I am far from it. There is only one model and one perfect sample of a man—the Lamb of God who taketh away the sin of the world. Shall we ever have a President who fears God, and who does not fear the rum traffic or any other form of sin and iniquity? Yea, verily; we have God's promise. But this depends very largely on the spirit that you and I show when we are trampled on or unjustly accused, like the little mignonette. It *should* only make us more gentle, and bring out that fragrance which is, before the world, of more effect than any thing else the world has yet known.

THE ANNUAL YELLOW (INDICA) SWEET CLOVER.

Mr. Root:—The annual yellow (or *Indica*) variety of sweet clover has been advertised somewhat as a honey-plant and as a soil-improver. In the hope of saving others disappointment I will say that it has proven a complete failure with us. The seed germinated fairly well, but the plants made so little growth that a person not actually looking for it would scarcely have noticed its presence. The ground upon which we tried it had been heavily limed, and contained soils of several sorts. A portion of the seed was also mixed with soil from a patch of sweet white clover containing nodule bacteria.

As both the white sweet and common red clover averaged a fair growth in the same field, I am led to conclude that the yellow annual is entirely unsuited to this climate. This conclusion I find is confirmed by the recent United States bulletin on sweet clover, it being therein stated that it makes very little growth in sections where the other sorts are usually grown. The Bokhara Seed Co., sweet-clover specialists, speak of it as the "worthless annual," and state that the seed is obtained as a by-product in the cleaning of wheat in some parts of the West.

The lower price at which the seed of this variety is sold has been an inducement to its planting; and since a farmer who has failed with one kind is likely to be suspicious of all, it would seem to the interest of beekeepers to help make its inferiority known.

H. D. TENNENT.
McConnellsville, Ohio., Aug. 27.

The above indicates that the annual yellow sweet clover is not a success in that locality. Now, in drawing conclusions let us remember there are two varieties of yellow sweet clover; and while the annual mentioned above is not a success in his region, it may be successful in other places. We shall be glad to hear from the friends in regard to it.

Temperance

"THE TRUTH SHALL MAKE YOU FREE."

So far as possible I earnestly request that every reader of these Home papers will at once secure a copy of the *Christian Endeavor World* for Oct. 10, and read the article entitled "Religion of Eugene W. Chafin." After you have read that, read the following which I have clipped from his address at Kansas City, August 9, 1911. Our older readers whose recollection reaches back to 1850 will vividly recall all the facts given; and I hope and pray that it may prove to be such a "revelation" to many, as it has been to myself.

ONE STANDARD OF MORALS.

Mr. Chairman, Ladies, and Gentlemen:—

Away back in the forties there was a class of people in this country called Abolitionists. The old abolitionist was the man who said slavery was wrong, and, being wrong, he said it was wrong in every township under the American flag. He was the man who was absolutely right on that question. On the other hand, there was the slaveholder who said it was right, and, therefore, right everywhere. Then we had the irrepressible conflict between right and wrong, and we have that in every moral battle.

WHEN THE IRREPRESSIBLE CONFLICT WAS FIRST DODGED BY CONGRESS.

In 1850 this slavery question became acute in American politics over the admission of California to the Union. When California asked for admission the slaveholders said they would not admit it unless it was admitted as a slave State. The Abolitionist came along then and said it should not be admitted unless it was admitted as a free State. This put the whole question up to Congress. They then had to decide whether they would admit it as a slave State or a free State.

Now, if there is any thing a congressman hates next to being defeated for reelection it is to have to vote upon a question upon which the people are greatly divided at home.

There was one man in that Congress who was in a worse fix than all the rest. He was in a terrible fix, and that was General Lewis Cass, United States Senator from Michigan. He had been the Democratic candidate for President in 1848, and had been beaten by General Taylor, and he wanted to try it again in 1852.

"Now," said General Cass to himself, "if I vote with the North on this question I lose the Southern vote and get licked;

and if I vote with the South I lose the Northern vote and get licked."

So it was up to him to get licked, no matter which side he voted on. What is a poor statesman going to do in a condition of that kind?

THE ORIGIN OF "POPULAR SOVEREIGNTY."

But Cass was a resourceful statesman. He had served his country more than forty years in public office, and in January, 1850, he got up in the United States Senate and made a great speech, laying down the doctrine known in American politics as "Popular Sovereignty."

He said, "Now, senators, this slavery question is a moral question and has no business in Congress." And they have succeeded fairly well in *keeping* morals out of Congress ever since. "Now," he said, "Senators, the way to settle this slavery question is this: Just submit it to a vote of the people over in California; and if they want slavery let them have it, and if they don't, they need not."

("Popular Sovereignty," "local self-government," "Jeffersonian Democracy," "let the people rule!")

DOUGLAS ADOPTS "POPULAR SOVEREIGNTY" NOTION.

California got in under the compromise measure of 1850, and that doctrine was put aside until 1854. Then Senator Stephen A. Douglas, of Illinois, introduced into the Senate a bill which was known in history as the Kansas-Nebraska Act, creating the two territories of Kansas and Nebraska. And you will remember that that great expanse of country out here at that time extended clear to the British line. The slaveholder came over and said, "Senator Douglas, you can't pass that bill unless you provide for slavery in Kansas and Nebraska." The next day the Abolitionist came along and said, "You can't pass that bill unless you have free soil in Kansas and Nebraska."

The whole question was up to Congress again, and Douglas in the same fix that Cass was. He wanted to be President too. "Now," he said, "I will just take this doctrine of Lewis Cass and I will put it into the Kansas-Nebraska Act." ("Local self-government," "popular sovereignty!") And so he did, and passed the bill. That repealed the Missouri compromise, and turned these two territories of Kansas and Nebraska over to local option. And that is all it was.

Popular sovereignty submitted it to a vote of the people to let them settle the

question. That went all right until 1858, when Senator Douglas became a candidate for re-election to the United States Senate for the third term from Illinois, and that summer he got into seven great joint debates in Illinois with a gentleman by the name of Abraham Lincoln; and Douglas laid down his doctrine of popular sovereignty in those debates, and said: "Now, the way to settle the slavery question is to take it out of politics and submit it to the vote of the people. If the people of Kansas want slaves, let them have them; and if they don't, they need not. I don't care whether they vote slavery up or vote it down. Let the people rule."

HOW LINCOLN PUNCTURED "POPULAR SOVEREIGNTY."

That sounds very nice, doesn't it? and it went all right until he turned to Lincoln and said: "What have you got to say to that doctrine of popular sovereignty?"

Well, Lincoln got up, six feet and three inches tall *physically*, but high as heaven *morally*, and said: "Senator Douglas, slavery is either right or wrong, and I hold that slavery is wrong; and, Senator Douglas, if slavery is wrong, I deny the right of Congress, and I deny the right of the legislature of Kansas, and I deny the right of any majority of the voters of Kansas, by popular sovereignty or otherwise, to put a slave where there never was a slave."

What! Denying the right of the majority to decide what is right or wrong?

"Yes," declared Lincoln. "If it is *moral*ly *wrong*, no majority can make it *right*." And then he went on in those famous words: "This nation can not live half slave and half free."

What did he mean by that? That you could not settle that great moral question with two standards of morals.

His illustration was to the point: "You can not settle this question while you have this condition of things: A penitentiary offense to sell a black man *north* of the Ohio River, but as legal as selling Bibles if you sell him *south* of the Ohio River"—wrong on one side of the river, right on the other; wrong on one side of the State line, right on the other—*two* standards of morals.

FROM LINCOLN—TO LORIMER.

After the second debate, Lincoln's political friends got around him and exclaimed, "Now, Mr. Lincoln, you have got to take that position back. A majority of the voters of Illinois and of this nation believe that the majority should rule, right or wrong, morals or no morals." And Mr. Lincoln replied: "I will not take it back.

I am right, and Douglas is wrong." "Then Douglas will beat you for the senatorship." "Perhaps so," retorted Lincoln; "but I will not take it back, even if he does."

Ladies and gentlemen, can you imagine such a thing happening as a man laying aside the senatorship for the sake of being right in the State of Illinois—*now*? Friends, it is a long way, isn't it? from Lincoln clear down to Lorimer!

EXIT "SQUATTER SOVEREIGNTY."

"Ah, but," Lincoln says, "if he gets the senatorship on that issue, in two years from now the fallacy of popular sovereignty will get into the heads of the American people, and he will never be President of the United States." And, if I remember history correctly, Stephen A. Douglas never *was* President; and in two years that doctrine got into the heads of the people, and then what happened?

The Republican party took that doctrine of Lincoln's and made a platform out of it. The Republican party was born upon the proposition of one standard of morals for the entire nation on that question.

And I want you to remember another thing, to keep in mind that, during that whole controversy, Lincoln and his people always dealt with slavery from the standpoint of its being wrong. Two sentences from Lincoln's inaugural address confirm this fact: "One section of our country believes that slavery is right and ought to be extended, while the other believes it is *wrong* and ought *not* to be extended. That is the only substantial dispute."

WHAT SETTLED THE SLAVERY QUESTION.

The whole controversy was over the question of whether slavery was right or wrong. After the Republicans had builded the platform upon that doctrine, then they took the man who had made the issue and put him on that platform, and, thank God, Abraham Lincoln became President of the United States on that platform and on that doctrine, and slavery died.

Did the compromise measure of the constitution *settle* the slavery question when the constitution provided that slavery should go on for twenty years?

No.

Did the Missouri Compromise *settle* the slavery question?

No.

Did the tariff measure of 1833 *settle* it?

No.

Did the Wilmot Proviso *settle* it?

No.

Did the compromise measure of 1850 *settle* it?

No.

Did "Popular Sovereignty" *settle* it?
No.

Did two political parties that stood for it for fifty years *settle* it upon the basis that it was right and could be regulated?

No.

When did you *settle* the slavery question?

When Lincoln came to the front and laid down this great fundamental principle of right and wrong, hitched those principles up to a *new* political party and went to Washington to take charge of the government. And then, one day before Lincoln died he signed his name to the thirteenth amendment to the constitution, abolishing slavery *for ever* in our whole nation; and then you *settled* the slavery question for ever, didn't you?

WHAT SETTLED THE POLYGAMY QUESTION.

I said I was going to show you that this doctrine is as fundamental as the constitution, on settling questions on the basis of one standard of morals.

"But," you say, "that was largely done—i. e., the *bossing* of the job was done—by the Republicans."

How about the Democrats?

It was only a little while after, that the Democrats adopted the same doctrine. Senator Edmunds, of Vermont, looked across this country three thousand miles from his home and saw an institution in Utah called polygamy. He had learned at the feet of Abraham Lincoln that you could not *settle* a great moral question except upon the basis of one standard of morals for the *whole nation*. One day he introduced into the United States Senate a bill which became known in history as the Edmunds Law, which made it a penitentiary offense for a man to have more than one wife at a time.

What did the Democrats do? Walked right straight up and voted for it, just the same as the Republicans. See what an awful jolt Democratic "personal liberty" got when you would let a man have but one wife at a time.

After the law was passed, and officers were sent to Utah to enforce it, Brigham Young protested: "Now, this is all wrong to pass this law without our consent. Take it back to Congress and have a referendum put into it and submit it to a vote of the people. Nine-tenths of the people out here are in favor of polygamy, and what we want is a chance to vote on it." ("Local self-government," "popular sovereignty," "let the people rule!") "In fact," he said, "what we want out here is *local option* on *wives*." Douglas wanted local option on *slavery*, and Brigham Young wanted local option on *wives*!

What did the Republicans and Democrats do?

HOW THE UNITED STATES ABOLISHED POLYGAMY.

Submit it to a vote of the people?

No.

They said "Lincoln taught us the doctrine of one standard of morals for the whole United States. Polygamy is wrong, and it is wrong in every township under the American flag." And they left the law there and said: "You get right up to that law or you will get into the penitentiary."

But Brigham Young cried: "You can't enforce your old law. Nine-tenths of the people out here are in favor of polygamy, and are against your law."

What did you do then?

Let me tell you one thing you didn't do.

You didn't turn the enforcement of the law over to Brigham Young.

You passed an act of congress providing that the President of the United States should appoint all the officers of the courts, and the President appointed Judge Zane, of Springfield, Ill.—sent him out there to be United States Judge. He got a United States District Attorney from Maine, and a United States Marshal from California. He didn't appoint *anybody* to run that court who had ever been contaminated by living with the Mormons.

These officers went out there to do their duty; and one day Judge Zane called his court to order and said: "Mr. District Attorney, are there any cases to be tried?" The District Attorney said: "Yes, your Honor; John Smith, for having twelve wives." The Judge said: "Call a jury." And they got twelve men in the jury box, and the defendant's attorney looked them over and said: "Now, may it please the court, this is not fair. Every man on that jury is a Gentile. There is not a Mormon in the box." So they challenged them and excused them, and got those twelve off the panel, and got twelve more. They looked those over, and they were all Gentiles—not a Mormon on the jury.

You see, it happened this way: The United States Marshal put the names in the box; and when he came to nine Mormons who were opposed to the enforcement of the law, he left them at home with their numerous wives and children, and put the one Gentile on who had only one wife to leave at home. And under that system he sent over *one thousand* of the Saints(?) to the *penitentiary*.

PROHIBITION IN THE CONSTITUTION STAYS PUT.

Well, they left the law there in Utah, and it is the standard of morals to-day in the

whole United States. And that law was effective until the infamous agreement was made between the Mormons and the Republican and Democratic parties—perhaps not parties, but politicians at Washington—that they *might* violate the law in consideration of political favors from the Mormons to the political parties running this government.

HOW UNCLE SAM DISPOSED OF THE LOTTERY.

I want to give you another instance where the Republicans and Democrats recognized and applied the same doctrine: Louisiana chartered the old Louisiana lottery soon after the war. After they got their charter out and were ready for business they discovered that it was a penitentiary offense to deal in lottery tickets in every State in the Union outside of Louisiana!

"Well, now," they ejaculated. "We intend to skin the whole United States in this game. What are we going to do? Suppose we go and interview Uncle Sam." They went down and saw the postmaster. He is Uncle Sam in every town in the United States. They said to Uncle Sam: "What is your standard of morals in these matters of sending newspapers through the mails that have advertisements of the lottery in them, sending circulars through the mail from our lottery, sending lottery tickets through the mail, permitting the people to get postoffice orders in all the States, and sending the money down to us, in violation of the laws of all the other States? *What is your standard of morals on that?*"

Uncle Sam told them: "We have got no law on the subject at all. It is just as legal to send all those things through the mail as it is to send Bibles through the mail."

"All right, we will bring over a ton this evening."

"Very well, just put your stamps on them and we will carry them to every post-office in the United States."

What was the result?

We had gambling in every township in America.

What was the trouble?

We had two standards of morals—a penitentiary offense to deal in lottery tickets in every State in the Union except in Louisiana, and in the whole United States.

What did you do?

You went down and saw Uncle Sam again, and said: "Uncle Sam, we are in trouble. Two standards of morals on the lottery question." He said: "All right. We will fix it." One day Congress passed a bill making it a penitentiary offense to put

a lottery ticket in the mail, or to put a newspaper in the mail that had a lottery advertisement in it, and confiscated the money orders if they bought them for the lottery.

And so you stopped that. Then, when they could not use the mails any longer, what do you suppose they did? What *could* they do under the circumstances?

ABOLISHING INTERSTATE COMMERCE IN LOTTERY TICKETS.

I will tell you: When they couldn't use the mails for that purpose, under the interstate commerce clause of the constitution, they sent their lottery tickets and advertisements by *express*. Did you ever hear of any thing being shipped from wet territory into dry by *express*? (Laughter.) And under the interstate-commerce clause of the constitution. I see you catch on all right.

Then what did you do?

You went down to Washington again and said: "Uncle Sam, we are in trouble again. They are using the interstate-commerce clause of the constitution to ship their lottery tickets by *express* into all this territory where you prohibited the use of the mails." And once more Uncle Sam said: "We will fix them all right."

HOW THE LOTTERY DIED.

So the day came when Republicans and Democrats united and passed a bill making it a penitentiary offense to ship a lottery ticket *across a State by express or freight or afoot or on horseback*; and then you had one standard of morals for the whole United States, and the old Louisiana lottery died, and there is no legalized gambling under the American flag.

Now, ladies and gentlemen, I want to ask you this question:

Haven't I shown to you, by the legislation of fifty years by Republicans and Democrats, congresses and presidents, that all have acted upon the doctrine laid down by Abraham Lincoln, that you could settle a great moral question only when you had one standard of morals for the whole United States of America?

But you say, "That is all right so far as your congress and the president are concerned; but how about the Supreme Court? That is a part of our government." And from the indications of some of the late decisions, it is quite a big part of our government too.

THE SUPREME COURT AND MORAL ISSUES.

When slavery was abolished they went to the Supreme Court on that proposition, and the Supreme Court said they had a right to pass the Thirteenth Amendment;

that they had a right to pass the Edmunds Law making it a penitentiary offense to have more than one wife at a time.

The Mormons went to the Supreme Court with that question. Brigham Young sent his attorney to that great court with his proposition: He said that marrying twenty-one wives out in Utah was a "religious ceremony."

What did the Supreme Court say? Listen to their answer: "It is *not* a religious ceremony in a Christian country; to wed one wife is a religious ceremony, but to marry two is a *crime*," and they said the law was all right.

Then when the law was passed prohibiting all interstate commerce in lottery tickets, they went to the Supreme Court with that question, and they said: "The Constitution says that Congress shall have power to regulate commerce between the States, and here you prohibit it."

What did the Supreme Court say? A unanimous opinion of the nine judges said that that clause of the constitution gave congress the right to regulate the shipment of cattle or dry goods across a State line, but on a moral question it had a right to prohibit interstate traffic entirely. Oh what a splendid decision!

THE STRANGEST CONTRADICTION IN AMERICAN HISTORY.

Ladies and gentlemen, I think I have shown you to-night that this doctrine of one standard of morals is as fundamental in our government, and has been for fifty years, as the constitution itself.

And you have acted upon it in every single instance but one in American history for the last fifty years—not only these three prominent instances which I have related, but in many others.

You have acted upon it in every single instance but one, and *that* is when you struck the liquor problem. And when you struck the liquor problem you said: "We will adopt a rule on this question different from any other." Isn't it marvelous that you were reasoning right on every single question before the American people until you came to the liquor question, and then you have an entirely different standard of morals?

See A. I. Root's Special Notice, this issue.

A TRIP ON A MOTOR-CYCLE TO THE OLD WORLD; BY ONE OF OUR GRANDCHILDREN.

Several times of late the question has come up as to who shall conduct my department in this journal when sickness or death shall cause me to drop it. The following letter from one of our grandchild-

dren, who has been spending his summer vacation in a tour through Europe, might suggest an answer; he was not quite 21 when this letter was written, and it is plainly evident he had no thought that it would ever find a place in GLEANINGS:

Dear Grandma and Grandpa:—I thought of home quite often on the Fourth of July; and, oh how I wish I could have been with you all for the picnic supper! It is the first one I ever missed on the Fourth.

I will first tell you the things you want to know worst. I am well and feel fine, and have been well ever since leaving home. My machine runs finely, and I haven't had a bit of trouble with it. We have saved money a good many times by good fortune—first on our motor-cycle crates; then on our transportation of them from one place to another; and, lastly, on our hotel bills and meals. In London we stayed at a private family with Mr. Boxwell. We had our meals and all for only \$3.48 for the five days we were there. Here in Paris we do even better. We get our rooms for fifty cents a night, and our meals for about fifty cents a day, besides getting our motor-cycles kept for nothing at our hotel. It costs a little more per day, but the accommodations are very much better, and the rooms cleaner.

This afternoon we went by the aviation field, and saw an aeroplane circling around the field. Later we saw one up in the air about three thousand feet high. Yesterday we saw seven balloons in the air at one time. This is a great place for aeronautics. Next Sunday is the day which the French celebrate as the Fourth of July. Hundreds of dirigible balloons and aeroplanes will be in the air at once.

Yesterday we were invited over to Dr. Wiatt's to dinner. He is the pastor of the American Church here in Paris.

Paris is the most beautiful city in the world. I am afraid it is the most wicked city in the world too. The French women are awful. I am disgusted with all that I have seen so far. The time will come when Paris will be taught an awful lesson, with a catastrophe far worse than the San Francisco earthquake. The beautiful buildings, the Eiffel tower, the Trocadero, the Arch of Triumph, and all the rest, will be destroyed as was Rome of old, and only their ruins will remain. It will be an awful lesson; but unless the French people wake up soon it will be too late.

The ride from London to Paris was beautiful. The green fields, sprinkled with red poppies, the stone walls and ivy-covered castles and chateaus, the green hedges, the thatched-roof peasants' houses, are all far beyond my power to describe. The roads in England are particularly beautiful. They are as smooth as a concrete floor; and the little villages with their tiled-roof houses and peculiar chimneys are exceedingly picturesque.

We don't have a bit of trouble in going from one country to another, because we got international passes in London from the automobile association. It was quite a lot of trouble and expense to get the passes, but they will save us untold time and money in the end. All we have to do now is to show our papers, have them look at our pictures, and see if they tally with us; sign two or three places, and we are off again. In about a couple of weeks we hope to be riding along the Mediterranean Sea. It will be beautiful in Southern France and Northern Italy.

This trip is doing me a world of good. For one thing it is making a man out of me, I hope. I am thrown upon my own responsibility, and even have to look after the two other boys to a certain extent. I keep both their machines in repair for them. Mine hasn't needed any attention yet.

We are coming home through Boston—at least Mr. Griffith and I are. We will stay there a day or two before we come on home.

I am sure you won't worry about me. I take good care of myself, and God takes care of me. When I get home I shall be healthier, stronger, and will have seen more of the world, which is a good thing for anybody. I also hope to be of some service to the business over here if I can.

Paris, July 8. HOWARD ROOT CALVERT.

WINTERING IN FLORIDA, ETC.

As so many are asking what it costs to go down to Florida and back, we have asked the Seaboard Air Line to give us present rates for the fall and coming winter. Below is their reply:

I beg to advise you that the winter tourist fares from Cincinnati are as follows: To Jacksonville, \$33.55; to Tampa, \$45.15; to Bradentown, \$46.65.

Tickets will be on sale October 15 to April 30, good returning until May 31. If rates are desired to additional points we will take pleasure in quoting the same.

C. B. RYAN,
General Passenger Agent Seaboard Air Line
Railway,
Portsmouth, Va., Oct. 2.

You will notice in the above that they give rates from Cincinnati to three points in Florida—Jacksonville, Tampa, and Bradentown, the latter being our winter home. If you wish to take a sleeper, the lower berth will be \$6.25, and the upper berth \$5.00 one way. If you leave Cincinnati in the evening you will be out two nights and a day, reaching Jacksonville in the morning. Now, if your train is reasonably on time you will catch the morning train from Jacksonville to Tampa, landing you at Tampa in the evening, thus making 48 hours from Cincinnati to Tampa or Bradentown. The fare from Cleveland, Ohio, to Bradentown, winter tourist, round trip, is \$57.15; but for a "25-day-trip," it is only \$35.50.

Let me repeat briefly what I have said many times for several years: You can rent rooms, furnished or not, good board and lodging, or board yourself, almost as cheaply in Florida as you can here in the North; and some things, especially the stuff grown in the South, is much cheaper than in our northern markets. You can rent places where one can stay for almost nothing up. In fact, quite a few people live in tents all winter in the neighborhood of Bradentown. Others put up some cheap little edifice that may be afterward used for a barn or stable; and so far as getting employment is concerned, any one who is industrious and skillful may be very sure of getting work. Now, I am sorry to reflect on infirm humanity; but there are always in the South more or less invalids who do not seem to recognize that they are unfit for work of many kinds; and some of these poor unfortunate people have an exalted idea of what they are able to do. Let me give you an illustration:

Just now here in the North there is the biggest kind of a demand for help of all sorts. Men, women, and children are wanted everywhere; and a good many times they get almost *twice* what they actually earn, because people are so rushed, and there is such a scarcity of help. Notwithstanding

this, just yesterday a big able-bodied man was around begging, saying he had applied everywhere, and could not get any thing to do. Now, may be I am a little severe, but it seems to me it is absolutely stealing to *pretend* you are working and taking a good man's money for work, and then make only a pretense when you are doing almost nothing. The point is, anybody who has all the time plenty to do, and more too, here in the North, will find exactly the same condition in Florida. A dozen people will be wanting him all at once.

In conclusion, I do not believe I would advise the young and middle-aged who have good places and fair health to go to Florida. But it certainly is a splendid place for elderly people and others who really can not stand the zero temperatures of the North.

Mrs. Root and I expect to start for our southern home on the evening of November 5, after I have cast my vote. We will take a through train that leaves Cleveland at 9 P.M. for Jacksonville, without change.

FLORIDA IN OCTOBER—A LITTLE GLIMPSE OF THINGS.

Perhaps I should explain, before giving the letter that follows, that our town of Bradentown has recently arranged for an electric current during the whole 24 hours, instead of only in the evening, and accordingly I have ordered an electric incubator, of the Cyphers people, so as to be on hand by the first week in November, in order to get it going at once. I wrote my good friend Abbott, who has charge of my "cross-bred" Buttercups, to have a setting of 60 eggs ready for the new incubator. I suppose I can hardly expect a good per cent of fertile eggs or strong fertile eggs just when the biddies are moulting. Here is his reply:

Mr. A. I. Root:—I can save you what eggs you want. The old rooster is all right, and with your hens; but they are moulting, and I am afraid you will not get many chickens. It is taking about 11 hens to get one egg now—that is, the bunch average about 9 per cent. If you are having "cold feet," live in hope. It was 95 at 5 o'clock P. M. to-day in our north room, with both ends and three doors open, and *no fire*. It is 89 now at 7:30. Doesn't that give you a "glow"? Mr. Rappleye came here from southern Michigan, where he went the middle of July. He said there were only six days during his stay there that he did not wish himself in Bradentown. He has become a "cracker," don't you think?

Bradentown, Fla., Oct. 15. D. W. ABBOTT.

"REGULATING" THE SALOON.

We like the Home, temperance, poultry talks, etc. In answer to the plea, "regulate the saloon," some one hit it about right when he said, "You might as well talk about regulating a powder-mill located in Hades."

Belleville, Kan., Sept. 12.

O. B. HAVEN.

Gleanings in Bee Culture

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Editorial

WHAT WILL THE WINTER BE?

LAST winter was, perhaps, the most severe one that has been known in a period of twenty years. According to the general law of average we can hardly expect another winter as hard on bees. Indeed, it would not be at all surprising if we should have an open winter! for a very cold winter is apt to be followed by a mild one.

NEW STATE ORGANIZATION FOR MASSACHUSETTS.

THE attention of our readers is called to the effort that has been started in Massachusetts toward perfecting a State organization, details of which are given on another page. We understand that this is the forerunner of an organized effort among beekeepers of the State to form a strong organization, and wide interest is being taken in it.

BRITISH SOUTH AFRICA PROHIBITS IMPORTATION OF HONEY.

It has been reported (*Rural New-Yorker* for September 21) that the importation of honey and second-hand bee-supplies is absolutely prohibited in British South Africa. The order against beeswax and foundation, however, has been annulled, following a permit from the Department of Entomology. We presume that bees on combs would be prohibited also.

HORSE STUNG TO DEATH.

As a rule, when newspapers get hold of a case where some person or animal is stung they exaggerate it so much in the effort to make a "good story" that little resemblance to the real incident is left. However, in the *New Holland Clarion*, a weekly paper, a writeup appeared of a horse left hitched close to some hives that was stung so badly that it died. While we question whether "the animal's head was literally covered with bees, filling his nostrils and hanging from his nose in bunches and ropes as they do from the hive on a warm spring day," the incident as a whole

appears very reasonable, and serves as a warning to those who may be so careless as to hitch horses right in the line of flight of bees to and from the hive. As this occurred after the honey-flow, undoubtedly, it is no wonder that the horse by stamping or switching its tail irritated the bees, so that they made trouble at once. The horse was so badly stung about the nose and face that it died later.

MORE ABOUT THE HARMLESS BEES.

IN our Oct. 15th issue we mentioned editorially the so-called stingless bees, newspaper comments concerning which have been "boiler-plated" over the country. Editor Digges, in the November issue of the *Beekeepers' Gazette*, throws more light on the question. The exploiter of these bees, a Mr. Burrows, of Loughton, England, has but nine colonies, and it is quite evident that he has merely stumbled on to a strain of bees that happen to be "so gentle that a child can handle them with perfect safety"! Mr. Burrows probably does not know that the same might be said of almost any gentle colony of Italians or Carniolans.

\$10,000 WORTH OF HONEY RULED OUT BY CHIEF FOOD-INSPECTOR IN CINCINNATI.

The food-inspection division of the health department had many condemnations last week, according to the report of Chief Food Inspector R. B. Blume. The honey alone condemned is valued in the report at \$10,000. The report states that this, as well as the other things condemned, were unfit for human food. Besides the honey, here are some of the big items of the report: 5801 dozen of eggs; 1442 pounds of poultry; 876 pounds of meat; 442 bushels of potatoes; 57 bushels of tomatoes; 23 tons of cabbage; 33 crates of cantaloupes; 238 barrels of apples; 37 bunches of bananas; 18 dozen cans of canned goods, and last, but not least, 24,750 pounds of peanuts.

The above clipping from the Cincinnati *Times-Star*, sent us by one of our subscribers, Mr. Albin Platz, of Cincinnati, caused us to write to Chief Inspector Blume for particulars. His reply, which follows, explains itself:

The condemnation of this honey was not due to an adulteration or violation of the food laws; but, owing to a fire in one of our local storage houses, the honey became damaged by being saturated with

a chemical. It was not thought advisable to use this honey as a food product under the circumstances. It was condemned, therefore, as unfit for human food.

R. B. BLUME, Chief Food Inspector.
Cincinnati, O., Oct. 25.

Of late there have been so few attempts at adulterating honey that the consumer in most parts of the country, at least, can buy extracted honey feeling assured that it has not been adulterated.

THE GREAT ABUNDANCE OF CLOVER.

THE reports from all over the country indicate that white and alsike clover are very abundant everywhere. The frequent and copious rains during the past summer—rains that have been continued clear up into the fall—have contributed to an unusually heavy growth of the clovers. In the 27 years in which we have been connected with this journal, we have never known the time when so much clover was reported. Certainly in our own locality there has never been any thing like it. In talking with some prominent beekeepers they expressed the belief that a severe drouth, or a killing one, could not possibly prevent a crop of clover honey next season all together.

DEATH OF JOHN G. COREY.

WHEN A. I. Root dictated the editorial that appeared in the November 1st issue concerning the death of Mr. Harbison, he did not know that another old veteran, Mr. John G. Corey, died on the same day. It is a remarkable coincidence that these two men who had so much to do with starting the beekeeping industry in California should die on the same day.

A picture of Mr. Corey appears on page 520, Aug. 15, and an extended reference to his life was given in the same issue, page 527. It is no little gratification to us that we were able to let this old veteran of our craft see the sketch of his life just before he died. As it turned out it was an obituary of a long life well spent. It is not often that ante-mortem obituaries are given. In this case the subject had the pleasure of seeing that his life had not been spent in vain. He gave his invention to the world. There are not many like him.

In the last two years, the grim reaper has cut down a very large number of beekeepers who were of prominence in the apicultural world twenty-five years ago or more. It is entirely fitting that we who claim to be among the progressive beekeepers of to-day should not forget the work done by these, our teachers, so many of whom have gone to their reward.

SPECIFIC GRAVITY OF HONEY.

A SHORT time ago Dr. C. C. Miller wrote asking why we did not have an article in the A B C and X Y Z of Bee Culture on the subject of the specific gravity of honey. He found under "Honey," for example, where a United States chemist says that the moisture content of a normal honey is 17.70 per cent. "But," said he, "I have not the means of measuring my honey to know whether it is 17 per cent or something else. If you will tell me how much my honey should weigh, *i. e.*, how many pounds per gallon, I could determine very quickly whether my honey is normal or not."

We went to our honey department where honey is being put up by the gallon in gallon cans, and investigation showed that the average extracted runs approximately 12 lbs. to the gallon. While the average gallon can will hold 12 lbs. of *cold* honey, it will hold only 11 lbs. 10 ounces of honey heated up to, say, 135 to prevent granulation. In other words, a gallon can will fall short by about 6 ounces of holding 12 lbs. of honey when it is filled. This shows that specific gravity varies according to temperature; and it is surprising that there should be so great a difference as nearly a third of a pound to the gallon of shrinkage when the honey gets cold, or, we will say, at normal temperature. Many times we suspect that honey, when it is first extracted from the combs during the height of the honey-flow, will not run much above 11½ lbs to the gallon. A part of this light weight may be due to the fact that honey at a temperature of nearly 100 degrees—that is, blood heat, the temperature of the cluster—is 30 degrees warmer than the atmosphere. Often it may be extracted when the mercury shows 90 or 95 in the shade. This alone will make the weight, even if it comes from sealed combs, some three or four ounces short of 12 lbs. to the gallon. But a good deal is extracted during the height of the season when from a third to one-half of the combs uncapped. This means that some of the honey is not thoroughly ripened. For that reason our large producers have found it necessary to store their honey in open cans, either in large vats covered with mosquito-netting or in square cans with the cap removed. In either case, if the honey is stored in a warm dry room, the specific gravity will increase from 11½ to 12 lbs. to the gallon.

In any case, it has been proven beyond any doubt that no extracted honey should be marketed unless it runs pretty close to 12 lbs. to the gallon when cold. Honey that

is of only 11 or 11½ lbs., is liable to sour. In some cases the heavier portions settle to the bottom of the can while the lighter rises to the top. Many a beginner has found to his sorrow that his honey stored in cans was thin, watery on top, and of poor flavor, while that drawn off from the bottom was of fair quality. But the worst of it is, the honey on top begins to sour, and very shortly the process of fermentation affects the whole can of honey. This fermentation may be arrested by taking it in time by heating; but the more the honey is heated, the more it affects the flavor it had.

We do not know what the moisture content of a 12-lb. honey would be; but as a 12 lb. is a normal honey, and as the Bureau of Chemistry finds 17.70 per cent is the amount of moisture in an average honey, the presumption is that 17.70 is the moisture content of a 12-lb. honey.

THE DIFFERENCE IN FLAVOR BETWEEN COMB AND EXTRACTED HONEY.

PERHAPS the average person would say that honey is honey, whether in the comb or out of it. We presume most extracted-honey producers would assert that *their* extracted, in point of flavor, is the equal of the same article before it was taken from the comb. We shall have to admit that a honey that has been thoroughly ripened has the same delicate flavor whether it is in the comb or out of it. If we could deliver the liquid product direct to the mouth of the consumer, before it granulates and is reliquefied, there never would be any question as to the difference between the comb and extracted honey from the same source and from the same colony, provided both had been capped over before their removal from the original container. But nearly all honeys granulate, and granulated honey has a slightly different flavor from the same honey before it goes into the solid state. We believe that most connoisseurs will agree to this. But when the granulated honey is liquefied it may or may not suffer loss of flavor, as a great deal depends on *how* it is done. In the great majority of cases, honey that has been heated will be found to have lost some of its original aroma. This difference, though not perceptible to the average consumer, can be detected by the connoisseur. We are informed that the flavors in honey depend on certain alcohols that reside in very minute quantities in the honey. If this is the case, these flavors would be very easily driven off by too high a temperature or by long-continued heat. Quick heating and cooling, if

the temperature does not go above 150 or 160, as a rule will not affect the flavor. But a temperature of 140 or more, especially if continued for 24 hours, will rob the honey of some of its delicate aroma, and a connoisseur will notice a slight caramel or burnt taste—something that the ordinary consumer perhaps would not detect. Then why should we speak of it? For the simple reason that beekeepers should be warned that, in heating their honey, they should be careful not to overdo the job. We are convinced that there is a science in liquefying honey; and while we think we know a great deal about it we have yet something to learn. One of the things we *think* we know is that honey should not be kept hot very long. It should be heated quickly, and cooled as soon as possible. Ordinary air cooling we find is the equal of cold-water cooling, although we believe there are some who will dispute this. Well, it comes to pass that a great deal of the liquid honey on the market has been improperly liquefied; and therefore will have lost some of its flavor. It follows then that the *average* comb honey will have more and better flavor than the *average* liquid honey.

There are thousands and thousands of consumers who prefer comb honey, and are willing to pay a double price for it. While a part of this preference may be due to education in early childhood, or to education on the farm, where no liquid honey was produced, there is no doubt that there is a real basis for this preference—in some cases at least.

Again, there are some honeys that suffer more from heating than others; there are some honeys that will remain liquid for a considerable length of time without heating. Mountain sage and tupelo are examples. There are other honeys that granulate very quickly, of which alfalfa, basswood, and buckwheat are marked examples. As a rule the consumer can not obtain extracted alfalfa unless it has gone through the process of granulation and heating to bring it back to its original state. The process in the hands of some will deprive it of some of its original flavor. In the hands of others there will be no appreciable loss, mainly because they know how, and that "know how," we believe, consists in quick heating, and cooling as soon as possible thereafter.

Aside from the inherent flavor already residing in the honey, it is proper to observe that beeswax itself has a flavor all its own. This flavor, added to the natural aroma of honey itself, makes a combination that is prized by some of our best connoisseurs.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

ABOUT that queenless-pollen business I think it's this way: If a colony is bringing in pollen it's a sign it has not been queenless long; but when a colony becomes queenless it keeps right on gathering pollen till it has an overstock, and then it stops. I never knew a colony long queenless without having pollen-clogged combs.

MRS. L. C. AXTELL, p. 706, carbon bisulphide, recommended by the editor, is the thing for wax-worms, large and small, as well as eggs; but if it's more convenient for you to use sulphur don't take the time to pick out the big fellows the sulphur doesn't kill, but put gasoline in a little oil-can and squirt it on them.

R. A. WALL uses scraps of galvanized iron or tin for figures on his hives. A right-angled triangle serves for four different figures by having the right angle in four different positions. Squares and parallelograms with their different positions serve for the rest. Certainly cheap, and familiarity may make them look like figures.

HARRY G. BRANT, you may not have smelled dead bees in the cellar with only two colonies, but you surely would with 25 or 100 if you confine them with your wire-cloth frame. At any rate, the bees can smell them, and it would be much better for their health and the health of the family living over the cellar to have the corpses fall on the cellar-floor to be swept up than to have them decaying on the floor-board.

ARTHUR C. MILLER is a trouble-maker, always unsettling something that has been considered settled. Now he says in *A. B. J.*, 305, "The mere adding of eggs and larvæ to a colony with a virgin will almost invariably cause her disappearance." That in face of the fact that for years it has been considered the proper thing to give young brood to a nucleus with a virgin to make her lay sooner. Say, Arthur, I find record of nine cases this year in which I gave larvæ to nuclei with virgins, and in each case the virgins became laying queens. What's that? "Were there no other cases which failed?" Why—er—well, yes; since you insist upon it, there were eight other cases in which the virgins disappeared. But then, virgins have also disappeared when no larvæ were given, so the whole thing is left unsettled. Somebody please settle it. [We referred this question to our Mr. Mell Pritchard, who has raised over ten thousand queens. He says he has never been able to discover that the giving of eggs and

larvæ had any thing to do with hastening the demise of a virgin queen. Indeed, he makes it a practice to give colonies with virgins young brood. Mr. Pritchard is a keen observer; and when it comes to matters relating to queen-rearing we consider him pretty near authority; and yet on the other hand, we acknowledge that Mr. A. C. Miller on general propositions is reasonably correct. Had we not thought so we would not have engaged him in the revision of the new edition of the *A B C* and *X Y Z* of Bee Culture.—Ed.]

SAMUEL SIMMINS strongly asserted that we were losing by using the L. frame instead of his 16 x 10. Then it was shown that the L. frame is really the larger. But Mr. Simmins very properly points out, *Canadian B. J.*, 263, that not the outside, but the inside measurements must be taken, and by that the 16x10 is the larger. He also claims the advantage that his frames are spaced $\frac{1}{4}$ inch wider in winter. But couldn't L. frames have the same advantage? and haven't they had it? One of his claims, however, deserves consideration: The greater depth, and so the more stores *above* the brood-nest. He seems more sure than ever that Editor Root is off in thinking that the size or shape of frame has nothing to do with winter losses, and thinks we should open our eyes to the need of a deeper frame. However that may be, friend Simmins, I happen to know of one apiary where last winter's losses were exceptionally heavy, and the frames were deeper than yours. [As we have before said, if Mr. Simmins were more familiar with our diversified climatic conditions he would probably conclude that the size and shape of the frame is not so material as he seems to believe. The climate of Great Britain is very much milder than that in most localities in our northern States; and the conditions in a mild climate, or one comparatively so, should not be used as a basis for an opinion for other localities where conditions are very different. For Mr. Simmins' benefit we may state that, during the past severe winter (the most severe, probably, that beekeepers here have ever known), the losses were just as severe on one class of frames as any other. For years we followed this proposition, and we, like all others in the United States, have come to the conclusion that the size and shape of a frame do not have very much to do with success or failure in wintering.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

That field of buckwheat on the cover page for August 15 looks refreshing to us who never calculate on getting any thing from the crop.

* * *

Nothing in the number for Aug. 15 set my blood circulating so fast as the temperance columns on the last two pages. When will our great political parties progress far enough to dare this hydra-headed monster and smite it to death?

* * *

The weather here in the East was, during August, the coolest for nearly thirty years. It has also been quite wet, making it ideal weather for clover, and we shall go into winter with more clover on the ground than for many years.

* * *

After inspecting for two years I am not surprised at the great variety of opinions in regard to foul brood, for there appears to be a great difference in the virulence of the disease in different localities, and even in the same locality in different yards. Sometimes even in the same yard one colony seems much better able to cope with the disease than another.

* * *

Somehow bees have seemed to be crosser this year than usual. In some instances, while trying to inspect bees I have been actually driven out of the yard. I have found the bees that have been handled most are the gentlest as a rule, and those handled least are the worst. In one case I was driven ten or twelve rods from the bees of a single hive, and still they came at me until I sneaked through a cornfield into an old ice-house where I got rid of them. I never saw the like of them.

* * *

On page 525, Aug. 15, in footnote to N. F. Gardner, the editor of GLEANINGS quotes Cheshire as authority for bees removing cocoons from cells of old combs when they become too small. Now, I will not say they never do this, but I have never seen combs where it looked as if they had; but I have seen many combs where the cells were lengthened to give more room for rearing larvae.

* * *

Mr. P. C. Chadwick, of Redlands, Cal., is trying to solve the problem of how to reach those who don't take a bee journal. I will tell you, Mr. Chadwick. Our foul-brood laws are reaching them pretty fast, and a good many of them will go out of

business pretty soon if they don't wake up. And yet they say in actions, if not in words, "A little more sleep, a little more slumber, a little more folding of the hands to sleep." Their business as beekeepers is almost sure to pass to others who will care for their bees and learn how to contend with foul brood.

* * *

When Mr. Lundgren was in this country last spring, from Sweden, I met him in the State of New York and also in Washington. I told him how both the farmers and beekeepers were greatly indebted to Sweden for a very valuable plant, alsike clover. He did not at first know what I meant, as I had pronounced the name so outlandishly. Then he told me politely how it should be pronounced—all-si-kee—in three syllables, accent on the second. It is doubtless too late to change the pronunciation now in use, but it was a satisfaction to me to know how it is used in its home land.

* * *

On page 331 Mr. Doolittle tells how to foretell swarming by examination of the queen-cells of the hive, but adds that "for the apiarist with from 100 to 500 colonies this task is seldom undertaken." Hold, my good friend; that is just what some of us Green Mountain boys do. It is mighty convenient, where you can visit a yard only once in eight or nine days, to open in and know for sure just what is going on; and if preparing to swarm, check it in some way. Where the bees are used for extracting honey it is not so necessary. In large yards bees do not seem to follow swarming rules very closely. I suppose this is because they get a great deal mixed.

* * *

Mention is made on page 417, July 1, of bees being a nuisance during strawberry time as well as during raspberry and blackberry harvests. I do not believe that bees often do harm to strawberry-pickers or the berries; but as I have raised a good many raspberries I know they will not only work on them but store the juice in their hives for honey; and yet they do little harm to raspberries except to those overripe. But we should remember the value of bees in the growing of raspberries in fertilizing the blossoms. Imperfectly fertilized raspberries are a ragged-looking lot of fruit, and the bees do far more good to the raspberry-grower than harm. [See statement by Wililam Belshaw, p. 740.—Ed.]

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THE TEXAS BEE BULLETIN.

The editor has already called the reader's attention to the bulletin written by myself, "Texas Beekeeping," published by the Texas Department of Agriculture, Austin, Texas. In behalf of our Agricultural Commissioner, Hon. E. R. Kone, I may say that, since he is much interested in furthering beekeeping, all who desire to know more about this industry in Texas may apply to him for a copy of this bulletin, and it will be sent free of charge. It is somewhat larger than the usual bulletins published, and is really more like a textbook on beekeeping in Texas.

* * *

WEARING WHITE OR BLACK HATS.

This is a subject that has been worn almost to a frazzle, for bee journals frequently relate some experience in which bees have been attracted to black objects, such as stockings, hats, chickens, or dogs. We supposed that, because of the dislike of bees for anything black, the wearing of lighter-colored apparel when working in the apiaries should always be advocated. However, at the last annual convention of the Texas beekeepers we found a beekeeper who actually prefers wearing a black hat at all times when working with the bees, and that for a very good reason. If he wears a light-colored hat, the bees, since he wears no veil, have a tendency to strike directly for his dark eyes. To avert this he wears a black hat, and this in such a fashion that the brim in front is pulled down to a level with his eyes. When a bee makes a dart for his eyes he lowers his head slightly, which brings down the brim of his black hat, and the bee, instead of alighting in his face, hits the hat-brim. This being black in color, and fuzzy, as felt usually is, the bee puts all its vengeance into the hat-brim.

It was also alleged, during the discussion of this question, that wearing a black hat would attract the stinging bees and thus keep them from stinging the operator. Our experiences teaches us to wear lighter-colored apparel, with a good veil, and thus prevent stirring up the ire of the busy little workers who make for us a living, instead of allowing them to kill themselves uselessly on any thing they do not like.

* * *

DIFFICULTY IN GETTING A QUEEN INTO A LAYING-WORKER COLONY.

That item by Dr. Miller, page 504, Aug. 15, in which he says he saw a laying-worker

in the act of laying, is interesting to me, as I have watched time and again without success to see the same thing. Out of the entire number of bees in a laying-worker colony, I once felt sure I had discovered some that were responsible for the eggs on account of their somewhat larger size or appearance, and the fact that their abdomens were distended. But although I marked some of these with white chalk I never caught any of them in the act of laying. If I had had more time I would have placed the colony in an observatory hive where I could watch the bees more closely.

I have never succeeded in getting a laying-worker colony to rear a new queen successfully, even though new brood is given. I have removed the entire lot of combs that contained brood from the laying workers, and replaced them with other combs, some of which contained very small larvæ as well as older brood; but the trouble continues as long as the laying workers remain in the colony. I have succeeded when the colony had not been queenless too long, so that the laying workers did not have too great a start, or when so much new brood was given that the newly hatching bees amounted to a considerable force when compared to the original colony. Simply giving a comb with young brood to a laying-worker colony does much to effect a remedy, according to my experience, as the bees will not rear a new queen successfully. It is also impossible to introduce a queen-cell or a queen to such a colony.

* * *

STUDYING HONEY MARKETS.

One who has never actually investigated or looked thoroughly into the marketing question is incapable of saying much about this vexatious problem. For instance, my own experience, although of many years' standing, may not do the other fellow any good; for, although I have been able to market crops of honey most successfully year after year, the other fellow's market may require a very material change from my own methods.

Recently I have studied the honey market of some of our large cities. It has always been somewhat of a wonder to me why none of the leading grocers in those places handle any of our honey put up in our own regular friction-top pails. Since these are standard-size packages here in Texas and Oklahoma, and since thousands

Continued on page 742.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

No rain of consequence since early in October.

* * *

There has seldom been a year that has brought as many inquiries for bees, with as few offered for sale, as the present season.

* * *

Mr. J. Ford Sempers, page 618, Oct. 1, questions the line of flight of a bee as being what is termed a "bee line." There is no question about his reasoning under the conditions he mentions; but it should be remembered that bees follow the course of least resistance. When in the open field, with no wind to hinder, they go just about as straight as wings will carry them.

* * *

The question of artificially ripening honey is agitating the minds of New Zealand beekeepers. Some Californians have tried this to their sorrow, and a few are prone to continue the practice. Buyers have been "stung" so often that now honey must have a good body in order to attract them, and you can not get it by extracting nectar and expecting it to make a good grade of honey. Better put on some more combs and let the bees ripen it. They are past masters at the business.

* * *

Riverside County beekeepers have organized a county club with T. O. Andrews president, and H. J. Warr secretary and treasurer. With these two men at its head the new club should succeed. Mr. Andrews is too well known to need any further introduction, and Harry Warr is one of those progressive, energetic young enthusiasts who manage to attend every important gathering of beekeepers. Good luck, Riverside! We have some of your residents in our club. If you can catch any of ours over in that valley, rope them in.

* * *

Mr. Editor, page 647, Oct. 15, you say, "Moreover a carload shipment of bees from Kansas where foul brood is prevalent was kept from being shipped into the State." I am curious as to whether those bees were known to be diseased. If not, on what ground could an interstate shipment be stopped? This sounds something like the rumbling of some of our California County ordinances that seek to prevent the shipment of bees from infected districts or from within many miles of where infection is known to exist.

There is one apiary in this county that has never been known to have foul brood, while within the past ten years no other within miles has escaped it. This owner should not be deprived of his right to move them where he chooses because his neighbors have had diseased colonies.

[Let us hear from Wesley Foster on this subject.—ED.]

* * *

Recently I gave a report of the action of our county supervisors, stating that they had suspended County Bee Inspector Herron. Well, everybody thought that was the last of Herron's *regime*, so petitions were circulated for the appointment of a new inspector, and presented to the board, only to meet with the information that Herron was still inspector; and from what I can learn he is still drawing his salary for office time that he never puts in. If any one should be interested in my opinion of this matter I would say that it is about as dirty a piece of politics as I have known of in this county. There are men on this board who have been on it for years while we have been fighting for Herron's removal. Men who are now on the board promised eight years ago, when we were fighting for Mr. Herron's removal, for cause, that, if complaint was made again, he would be removed without further question. Since that time two grand juries have recommended his removal, and still he hangs to the job in spite of our efforts. Some of these men are up for election this fall; and while this will not reach its readers until after election, I sincerely hope that the voters' district will see fit to let them retire to private life. I have had great respect for the present chairman, and in some respects still have, but he has played politics with us beemen long enough. Some of his friends will doubtless resent this; but I say it without fear or favor.

This only goes to show the need of a State-wide law to regulate the inspectorship and to put it into the hands of the beekeepers themselves. At the last meeting of the San Bernardino County Association we voted to let the removal of Mr. Herron go, and to work for a State law by which we could cause his removal without having to humiliate ourselves before the county board of politicians who think more of their jobs than of our interests. If all beekeepers in California knew what a hard fruitless fight we have had in this county they would back the new law to a man.

Conversations with Doolittle

At Borodino, New York.

WINTER ENTRANCES.

"I suppose it is time that the bees be fixed for wintering. What about the size and location of the entrance?"

"That depends on where you expect to winter your bees."

"Well, I winter about half of my bees in the cellar and half on summer stands."

"For cellar wintering our best beekeepers hardly use what might be termed an entrance, as hives are often piled break-joint fashion, so that nearly the whole of the bottom of the hive is left open over a space the depth of the full hives below, as the ends of any hive on top rest on the ends of two other hives below. All bottom-boards are left off when wintering on this break-joint principle. And, strange as it may appear, the bees will often hang below the combs in a cluster as large as the crown of a hat. This is one of the very prettiest sights, to my way of thinking, that ever greets the eye of an apiarist. To see these great clusters hanging below the combs, all motionless in midwinter, gives an indication of a good crop of honey the coming summer."

"Where hives are not piled on the break-joint plan, bottom-boards are generally used that have a winter side as well as a summer side, the winter side being two inches or more deep, so that, if we say we have an entrance at all, such is two inches deep by the whole width of the hive. An entrance such as is used in the summer would be so small that the bees dying from old age would clog it. Then a general commotion is the result, and the bees worry themselves so that their usefulness when spring opens is badly impaired, if the untimely death of the whole colony is not the result."

"How about entrances for wintering on the summer stands?"

"Where unmolested by the hand of man, the bees, as a rule, cluster between the combs where the last brood emerged, for here are the most vacant cells. And this brood is generally right back from the entrance, and nearer or further off, according to the amount of stores which the hive contains. If the hive is well supplied with stores, then the last brood reared will be close up to the entrance in from three to five combs; but if the stores for winter are light, then the last brood will be in these same combs, but often back as far as the middle of the hive. At these points the bees can cluster the most compactly by

means of the empty cells; and, being surrounded on most sides with honey, and plenty of pure fresh air from the entrance, they are able to pass the winter in safety unless the winter is long, with a period of five to six months without a flight. Such a winter (not of extreme cold, but not warm enough to give the bees a flight), through this long confinement, chronicles the loss of many colonies, no matter what the stores or where the entrance is located. However, even in such a winter a proper and well-located entrance, and good stores, will enable many colonies to pull through in fairly good shape, while, lacking in either, the mortality would be much greater."

"Please tell me what is a proper and well-located entrance."

"I always face my hives south, and keep them thus at all times of the year, for in this way the sun has an equal chance at both of the sides, while the entrance end is always warmed and dried out by the midday sun. I consider this a great advantage where outdoor wintering is practiced. Then, as hinted at before, the entrance should be right in front of the ranges of combs which the bees occupy, so that the air can be allowed to circulate between those combs which the bees are occupying by their winter cluster. Suppose your hives face south; then if the ends of your combs are toward the entrance, which they always should be, to my way of thinking, your entrance should be midway on the south, so that the air will come in directly in front of the cluster. In this way the bees will not want for pure air."

"But suppose you had allowed the entrance to be near the east side of the hive all summer, so that the last brood which emerged was near that side of the hive, and, thinking that better results would accrue during winter, you made the winter entrance at this time of the year on the west side, the air would not come direct between the combs the bees are clustered on, but would have to pass under and around the combs till it arrived in scanty amount where the bees are, in which case the bees would be likely to suffer from want of pure air, resulting in poor wintering."

"My way has been to allow an entrance the whole width of the hive on the south and seven-sixteenths inch deep. The air then can come in between any and all ranges of comb. This, with a windbreak, so that the wind can not blow directly in the hive, has given the best results."

General Correspondence

DON'T MIX HONEY WITH SYRUPS

Enough Suspicion of Pure Honey Already

BY MAJOR SHALLARD

I think Mr. E. W. Peirce's idea of mixing honey with "Karo" or any other syrup, July 1, p. 409, is much to be deprecated. Once let the public mind associate honey and syrup, or honey adulterated by any thing at all, and you will do the industry an immense amount of harm which it will take years of effort to remedy.

In bottling honey for the grocery trade in Sydney (a city of 600,000 people) I came into competition with adulterated honey; *viz.*, glucose (I put this first because it was the basis), sugar syrup, and honey; and as this could be put on the market at a lower price than my pure honey, I found it hard to keep my trade. The trouble appeared to me to be this: That the adults did not eat honey, and the adulterated stuff did well enough for the children; and as most homes have a scarcity of cash, the cheapest got the preference. If these people would only think a little, and realize what future trouble they are laying up for their little ones in liver and kidney disease, through this stuff, I feel sure they would not have it in the house.

There was absolutely no comparison between my pure honey and the opposition mixture, and after the people came to recognize this, the former more than held its own.

At one time I thought of putting a cheap honey (?) on the market to compete with these adulterators. I got a cask of glucose and some sugar, and experimented with various strengths of glucose and various qualities of honey. I found that the darkest (almost black) honey gave the best results. It gave the most cash, and it was possible to mix up stuff (it was *stuff*, it was not honey) that would give satisfactory tests in the polariscope, but there was no more comparison between it and the honey I was bottling than there is between a trust magnate and an honest man. We, my helpers and myself, had bottles of various mixtures all over the place; and continually tasting the stuff made us all sick.

We all got so full of the stuff that any smell of glucose at all used to make us feel ill, and I decided that, if it was not good for me, it was not good for any one else; and so I gave up the idea altogether. I got the manufacturers to take the glucose back, and stuck to the pure honey.

There was never any question about my honey, as it was the product of my own apiaries; but the public became so suspicious about adulteration that I found it necessary to put the following on my labels:

"I will give £20 to any one who can produce a bottle of my Blue Mountain honey which is adulterated."

This settled all argument so far as I was concerned; but they were still very suspicious where other honeys (many of them absolutely pure) were concerned.

For the last few years we have had a pure-food act which is rigidly enforced. Under this act all foods must be accurately described on the label, and net contents of the packages given; but the manufacturers dodge this to some extent. For instance, the honey adulterators put this on their label: "Honey" in large type; and underneath, in very small type, "mixed with saccharine matter." If they put "Honey adulterated with sugar and glucose," the people would not buy, and that is really what it is because it is impossible to get sufficient consistency without the glucose. Some of the manufacturers put the incriminating label under the bottle; but the board of health stopped it. The board of health carries out its duties well and efficiently, and woe betide the transgressor if they catch him. They are continually catching people for diluting milk, and they fine them very heavily—fines being inflicted from £10 to £25. An inspector visited my bottling place one day and remarked with a smile, "Putting up honey and sugar?" I told him if he could find any sugar or glucose on the premises I would make him a present of it, and also of a £10 note. Then I took him down to where several gross of bottles were ready to go out, and told him to read the label. "Now," I said, "you take that bottle home and earn that £20." Well, I could not induce that man to take any honey away at all—not even as a present. But, as I said at the start, if the public once becomes convinced that some honey is adulterated it takes years and years to get the idea out of their heads.

Even now, in spite of the law, nine people out of ten will tell you that "it is not possible to get pure honey in Sydney," which is absolute nonsense, because you can get it at almost every grocery; but you can not make the people believe it. Every now and then, people will come to one of my apiaries and buy some honey, and they will say, "Ah! this is the pure stuff. I can't get honey like this in Sydney,

you know;" whereas tons and tons of exactly the same honey are being sold every year in Sydney; but you can not get them to believe it.

No! take my advice; don't mix honey and syrups up in the public mind or you will never cease to regret it.

Moreo, N. S. Wales.

[We do not understand Mr. Peirce as advocating the selling of a mixture of honey and glucose; we think he would agree with our correspondent that such a plan would prove disastrous in more ways than one. His suggestion, if we understand him correctly, was to publish a recipe or formula, to be used by the consumer only.

Personally we do not like the taste of corn syrup, or glucose, as it should be called, when mixed with honey in any proportion.—Ed.]

AMERICAN FOUL BROOD

A Plan for Simplifying the Second Shaking by Giving the Bees Two Drawn Combs in Addition to Full Sheets of Foundation when They are Shaken the First Time

BY E. D. TOWNSEND

As foul brood exists in 52 of the 72 counties of Lower Michigan, it behooves us as beekeepers of this State to keep well posted along the line of fighting disease or we may wake up some morning and find it too late. No one can make a success of bees in a diseased location unless he learns the characteristics of American and European foul brood, knows how to treat the two diseases successfully, to keep it in check, and to produce a paying crop of honey.

This is my first attempt to write on the subject of American foul brood, although we have had the disease in one of our yards for the past twelve years. Aside from this experience I have helped my neighbors to some extent. Some may wonder why we did not get rid of the trouble before it ran so long. In the first place, we had neighbors close by who had disease among their bees, and there probably was disease among the wild bees in the woods. Then it is easier to talk about eradicating disease than to go ahead and actually do it. It is likely to crop out in the most unexpected places.

It is a question with many whether the spores of American foul brood live long outside of old brood combs or sealed honey. My experience indicates that these spores

soon lose their vitality when adhering to hive sides and fixtures, and I have often thought that the thin coating of honey adhering to new combs after extracting is not sufficient protection to the spores, and that they, too, soon succumb and become harmless, especially after being exposed to the cold temperature of our northern winters.

FOUL BROOD IN EXTRACTING SUPERS.

Some writers think that very few of the bacteria find their way into the supers during the honey-flow; and for that reason not many, if any, adhere to the extractor reel after extracting comb from a diseased colony. I take no stock in this belief, for I am positive that millions of bacteria are carried above by the bees in the process of ripening honey. I will give just one instance to illustrate this point.

One of my neighbors had ten colonies of bees; and as he had secured no surplus he wanted me to work them for him. More as an accommodation than for what I expected to get out of the bees, I consented. The result was that we got a thousand pounds of honey and lost the extracting combs we took there, for we found American foul brood in them later. The amount of honey that we secured shows that the colonies were strong, and that they did not have the disease very bad. As was our practice we used no queen-excluders. The upper stories were put on about June 1, and about August 1 we found many of the combs in the upper stories rotten with disease, for the queen had taken possession of many of the first stories given. After this experience it would take considerable to convince me that few bacteria of American foul brood are carried above into the extracting-combs during the honey-flow. We know that the spores of American foul brood may live twenty years under favorable conditions. Now, what the honey-producers want to know is how soon these spores lose their vitality under unfavorable conditions.

In handling American foul brood it is absolutely necessary that the apiarist provide himself with a bee-proof honey-house. Robbing must be prevented; and the careless handling of bees, causing them to mix from a diseased colony with a neighboring healthy one, must be avoided.

HOW TO INSPECT QUICKLY.

Our working plan is about as follows: Just before the opening of the clover flow, which is usually about June 1 in this locality, we go all over the yard and take from each brood-nest two combs containing the oldest brood. These two are examined very

closely for disease; and if none is found the colony is considered healthy. Each diseased colony in the yard is marked according to its strength in bees. Extracting-supers of white clean combs that have never been used by the queen are given to the healthy colonies above queen-excluders. Those marked "bad" are left as they are until the approach of the honey season, when they are treated as follows.

OUR PLAN IN DETAIL.

Any time during the day, provided robbers are not allowed to get a taste of the diseased honey, we remove from all of the diseased colonies every comb that does not contain brood in a quantity worth while saving. These are extracted, and then rendered into wax. When removing these combs of honey or empty combs, as the case may be, the brood-combs left in the hive are loosened, and spaced a little wider than usual for convenience in handling them later. About every fourth colony, however (we try to select those lightest in bees), is left with the combs spaced as usual, and pushed over to the side of the hive; for in these hives we afterward stack the diseased brood from the other colonies for the purpose of allowing it to hatch.

We now return to the colonies to be treated. Remove the old hive to one side, and in its place upon the same stand put a clean ten-frame hive containing seven frames of full sheets of foundation, and two drawn combs (if it is an eight-frame hive, five frames of foundation are enough). A cover is then put on, and a wide alighting-board put in such a position that the bees and queen will have no trouble in finding their way back into the hive when the combs are shaken. We then shake off the bees that can be dislodged without spilling a particle of honey, using a brush to get the rest of them. These five or seven combs of diseased brood, according to the strength of the colony treated, are now carried to the light colony mentioned above. The light colony will care for the capped brood in three stories; and as we do not care to preserve unsealed brood, as I will explain further on, a colony of this size is large enough for what we want of it.

The two drawn combs given the treated colony really save one shaking, or nearly so, and one day in the time taken for the double shaking plan. It is a fact that, with any method of freeing the diseased comb of the bees, much diseased honey is carried into the clean hive with the bees; and the secret of success lies in one's ability to get the bees free from this diseased

honey before storing any honey in their new quarters. These two empty combs accomplish this result. Let me digress.

MORNING, NOT EVENING, THE BEST TIME TO SHAKE.

For several years I have felt that the practice of shaking bees at night in the treatment of disease is all wrong. It is advisable to treat American foul brood during the honey-flow, and at night, after a day's work in the field, much nectar is stored that shakes from the combs at a mere touch, so that it is impossible to get the bees from the combs without spilling considerable of this thin honey. It is not desirable to let this get into the clean hive. Furthermore, aside from what is shaken out of the cells, the honey-sacs of the bees are full of this thin nectar, in the process of evaporation, so that a more undesirable time to do this kind of work could not be selected.

Brushing bees from diseased combs without first shaking off the majority of them is rather too slow a process. It takes so long to get the bees all off a set of combs that many of them have time to fill their sacs with honey and carry it to the new hive. This we do not want.

In the morning, on the other hand, the honey from the previous day has been evaporated to such an extent that none is shaken from the cells, and the nectar in the process of being evaporated from the previous evening is cured and stored to quite an extent.

Taking advantage of the fact that the honey in the combs will not shake out, and also that the bees have disgorged themselves of the honey in their honey-sacs, we are ready to remove those two combs before mentioned, and it is done as follows:

The first morning after the colony is shaken from the diseased comb we quietly remove the cover of the hive, give the bees a slight puff of smoke, so that they can be handled, and in less than a fourth of a minute, and before hardly a single bee realizes what is going on, they are shaken from these two combs, and three more full sheets of foundation put in their places. The hive is now closed up nearly destitute of honey. One will be surprised at the amount of honey in these two combs after only the one day. Even when there is but little coming in from the fields, the two combs will be quite heavy with honey, showing the need of taking it away.

Some may ask if we do not lose two extra combs by this plan. We do not, for it sometimes happens that we have some undesirable combs that we can use for this

purpose. And in case we do not, we select some of the outside combs from the colonies having the least disease for this purpose. We take those that contain no brood and but little honey. Even if there should be a little sealed honey it will do no harm so long as there is room for the bees to store what honey they bring with them in their honey-sacs when they are shaken from the old combs.

The weak colonies on which the brood is stacked up are treated later in much the same way as described above. I will give full particulars in my next article.

Remus, Mich.

(*To be continued.*)

EXPERIENCES OF A FOUL-BROOD INSPECTOR

BY J. E. CRANE

[This is the first of a series of articles describing beekeeping in Vermont as seen by J. E. Crane while serving as State inspector.—ED.]

I know of nothing in the whole realm of beekeeping that will knock the conceit out of an old beekeeper more effectually than inspecting bees and visiting all kinds of beekeepers. Where one least expects it he will find new devices and short cuts as well as the densest ignorance. He will also meet some of the most charming beekeepers who will send him on his way rejoicing, and others whose acquaintance he will not care to court, but whose ways he must put up with.

I was very fortunate when commencing my work as an inspector. I had had considerable experience with American foul brood, but knew little or nothing of the European type except what I had read. My first visit was in a town where this disease had been doing its deadly work for several years, and almost every yard in the place was more or less diseased. One of the most intelligent beekeepers of the town took me to his home; then out among his bees, and in the most kindly way showed me the character of the disease and his method of combating it. I shall ever hold him in grateful remembrance. He also introduced me to some of the other beekeepers whose yards were badly diseased.

The beekeepers of that town are, as a rule, much above the average, both in intelligence and in enterprise; and upon following my advice the locality, within a few months, was practically free from that disease. I know of but one yard there where it exists to-day; but the territory will have to be watched for a few years to prevent its reappearance.

I have often read in our journals that

European foul brood is very apt to break out in yards that have been cured. I attribute this largely to the fact that more or less of the diseased colonies have remained or have been overlooked, forming a nucleus from which the disease again spreads. Even in localities that an inspector has examined with care, and that are supposed to be free from disease, he is apt, upon making a second inspection, to find new yards, which, although small, are large enough to harbor disease and spread contagion.

Our State law requires that an inspector shall visit diseased yards a second time to make sure that directions have been followed and the disease cleaned up—a wholesome provision! But after making careful inquiries I find I have overlooked yards where disease existed. Even if the inspector were able to find and to examine every yard in a section where foul brood exists, yet the danger of contagion from bees that have escaped and have found a home for themselves would still remain in many places.

This home may not necessarily be a beetrée in the woods, as we are accustomed to think, but an apple-tree in the orchard, or the cavity between the inner and outer wall of a deserted house, or even the steeple of a church or the attic of some house whose inmates have never suspected the presence of bees.

One bee-hunter told me of finding colonies in a brush-heap, among stones, and in an apple-tree in a neighbor's back yard. I once took a colony from a neighbor's attic. There is nothing to prevent these wild bees, as we call them, from contracting disease, and, later, from spreading it among bees which have been treated previous to that time. I met three experienced bee-hunters in 1911 who told me that they had found diseased brood in colonies taken from trees. One of these men was an intelligent and somewhat extensive beekeeper who at one time lost all of his bees because of foul brood, and I believe his statements should be taken at their face value.

Now, I think we should not consider any given section cleaned up until there has been time for all of these wild colonies to die off, say two or three years; then if the disease does not reappear in any yard, that particular section may be safely pronounced free from further trouble.

The law of the State under which I have worked makes it the duty of the inspector, when he finds a contagious disease, to visit all apiaries in the vicinity, so that, if possible, he may learn just how large an area



J. E. Crane at work inspecting an apiary.

is subject to disease, and how many apiaries are affected. In the half of the State that I cover I have found five or six such centers of infection that I have been able to locate, and two or three where the disease has appeared and has run its course, destroying all before it, and then itself disappearing. In one such case, after finding almost every yard diseased, I thought it my duty to visit the towns adjoining. The location of these is somewhat peculiar, as the town itself is separated from the towns on the east, south, and west by water varying in width between half a mile and a mile. But as the bees crossed the water freely for forage during fruit and clover bloom I thought I might look for disease. I was, however, most agreeably surprised to find every colony in these adjoining towns free from any taint of foul brood. This experience satisfied me that bees are not likely to carry the disease across half a mile of water. How far they will carry it when no water intervenes I have no means of knowing. I have, however, come to the conclusion that a good-sized mountain will check the spread of disease. In fact, I have some very good proof of it.

Speaking of centers of contagion, one of the worst was in my own county, and consisted of about 250 colonies occupying an area almost equal to that of an ordinary town. These bees were scattered through

eight or ten yards, in some of which almost every colony was diseased. I did not rest until I had learned just how far in each direction the disease was to be found, and had every owner of bees at work making an effort to get rid of the disease. I did not expect that it would all be cleared up the first year; but I believe at least nine-tenths of it was.

An interesting question comes in right here. How far will bees go to rob a colony weakened by disease? I frankly confess that I don't know; but I was told by one beekeeper that they will go three-fourths of a mile. Another had heard of their going $1\frac{1}{4}$ miles to rob other hives.

Disease is also spread by careless beekeepers who leave out of doors, for the benefit of other colonies, the hives in which diseased bees have died. The rank and file of beekeepers do not seem to have the slightest idea of the character of foul brood, nor how to prevent its spread.

The careless use of comb foundation, too, has helped to spread this disease. When a beekeeper has learned the use of comb foundation he often hives swarms that have issued from foul-brood hives on foundation; and the honey carried by the old bees to the new hive, and there stored in the rapidly built combs, often makes trouble later.

Middlebury, Vt.

To be continued.

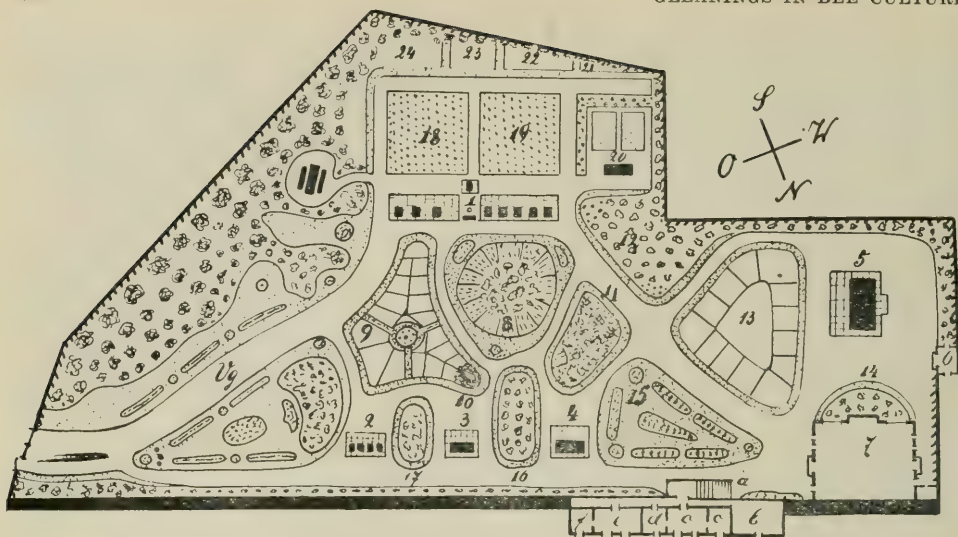


FIG. 1.—PLAN OF THE ROYAL INSTITUTE FOR BEE CULTURE AT ERLANGEN, GERMANY.

1. Bees in hives of different styles; 2. Stocks of different races; 3. Stand of bees for experiments; 4. Bees in skeps of different styles; 5. Model bee-house; 6. Garden-house; 7. Museum; 8. Bed of spring pasture; 9. Bed of summer pasture; 10. Watering-place for bees; 11. Late-flowering bee-plants; 12. Fruit-trees; 13. Agricultural bee-plants; 14. Decoration bed; 15. Bed of plants to show relation between bees and flowers; 16. Berry-trees; 17. Decoration bed; 18, 19. Bee flowers; 20. Students' bee-stand; 21. Meadow ground; 22. Corn-field; 23, 24. Industrial bee-plants.

A MODEL INSTITUTE FOR SCIENTIFIC AND PRACTICAL BEE CULTURE

BY R. LINDE

[In America there are at least four universities at the present time in which bee culture is featured as an elective part of the regular course; viz., the Ontario Agricultural College, the Wisconsin College of Agriculture, the Massachusetts Agricultural College, and the Agricultural and Mechanical College of Texas. In our Oct. 1st issue were several pictures of the buildings and equipment used in the study of beekeeping in Massachusetts. The following article shows the extent to which beekeeping is taken up in a prominent German university.—ED.]

In GLEANINGS for Dec. 15 I endeavored to draw the attention of the fraternity across the water to the work carried on at the Royal Institute for Bee Culture in Erlangen, Germany. It is my privilege now to give a description of this institute, showing how it is arranged and equipped.

Erlangen is a small town in the kingdom of Bavaria, the largest state in Germany except Prussia. Erlangen seems to be noteworthy on account of its university, to the zoological institute of which the Royal Institute for Bee Culture is linked.

Formerly the institute was divided into a scientific and a practical department; but that division does not seem to have been of any advantage generally, for it has been abolished. There are more places in Germany where bee science is cultivated. However, at Erlangen beekeeping as a science is brought into intimate contact with practical bee culture. That is what distinguishes the Royal Institute at Erlangen. So far

as I can conceive, personal ambition (the abscess on the body of German bee industry) has no particular place at Erlangen, where a most sincere desire to render useful service to practical bee culture seems to be the moving power in the main.

GENERAL ARRANGEMENT.

Fig. 1 shows a plan of the institute. The laboratory, Fig. 2, being situated in the building of the zoological institute, is thoroughly equipped with the newest and best instruments and apparatus for carrying out zoological and bacteriological studies. An interesting and very necessary implement is the glass house, Figs. 3 and 4, ready for use in the garden of the zoological institute. This glazed bee-house supplies the bee-material required during winter time, and is divided into a small working room and a large partition where the bees can take their flight. Fig. 4 gives a view of the inside of the bee partition. A few nuclei in single-comb observatory hives are kept here over winter. Branches of hazel, alder, cherry, and similar trees are put into water and come soon into bloom in the glass house, the temperature of which is kept at 64 degrees F. The bees are eager to carry in the pollen thus afforded. The glass house is covered with dim glass, with the result that the bees soon become accustomed to the limited flying space.

THE VEGETABLE BIOLOGICAL PLANT.

This is a very interesting part of the institute, and demonstrates the close rela-



2. The laboratory. 3. The glazed bee-house where bees can take a flight during winter. 4. View of the inside. 5. Springtime bee pasture. 6. Summer pasture. 7. Late-flowering bee plants.

tion between bees and flowers. Three beds (9, 8, and 11, Fig. 1) are occupied with bee-plants grouped in accordance with their flowering time. Thus on one bed you may see the principal flowers yielding nectar and pollen during spring time (Fig. 5). On another bed all the important bee-plants of summer are grouped together (Fig. 6), and a third bed shows late-yielding bee-plants, the most important of which is heather, Fig. 7. Agricultural plants of value for the bees are placed on a bed by

themselves, as in No. 13, Fig. 1, and further beds are devoted to plants showing especially well the intimate relation between flowers and bees.

THE BEE-GARDEN.

With taste and skill the different bee-stands are distributed among the equally well-arranged flower-beds and fruit-trees. The position to the right of the decoration bed, 17, Fig. 1, is occupied by four stands of bees representing four typical races (golden Americans, Italians, Carniolans,

and German blacks). The hives are painted a dazzling white, and thus afford a good background for the colors characteristic of the different races.

On the other side of the decoration bed mentioned is a stand with colonies for experimental purposes that may be seen in Fig. 9. In the foreground of this photo a very interesting watering-device is shown that supplies clean water for the bees when in need of it, as in early spring. On an unpolished plate of granite, placed toward the south, at an angle of 45 degrees, fall drops of water from a pipe having 12 outlets. The plate of granite absorbs the rays of the sun so thoroughly that the temperature of the down-flowing water rises soon to about 76 F., while the temperature of the air does not rise above 43 F.

A very important point in favor of this watering device is the ease with which it can be kept clean. As the water is constant-

ly flowing, the danger of infection is very remote.

Owing to the fact that in this country a great number of different constructions of hives are in use, the institute maintains a special stand (No. 1, Fig. 1) where bees are kept in the more important types of hives side by side. Thus visitors and students have an opportunity to compare the advantages and peculiarities of the different systems. Each hive bears a small plate furnishing all necessary information as to the internal construction of the hive.

On this continent most beekeepers prefer to put their bees into bee-houses. Usually these bee-houses are properly built and neatly kept. Fig. 11 shows a small model bee-house of the common German type. It contains five stands of bees, the hives being placed closely side by side. The space immediately above the hives is filled with hanging windows and flap windows. Above



11. A small model bee-house of the common German type.



8. Different races of bees side by side; 9. Bee-stand for experimental purposes, and the special watering-device; 10. Bees in different styles of hives.



12. Bees in different styles of skeps.

these, just below the roof, there is a box-like construction projecting through the wall (as the photo clearly shows) to accommodate spare combs. The small white painted box on the outside, next to the door, contains meteorological instruments. The working-room of the bee-house is provided with work-bench, washing-stand, oil-stove, and shelves for feeders and appliances.

Skeps are, I think, a rarity on your continent, although I have met people who told me they had taken skeps with them when they emigrated to America. But I suspect those skeps have, in most cases, found a place in the poultry-yard as hens' nests.

In Fig. 12 four of the most common types of skeps are united under an old-fashioned straw roof that corresponds nicely with the character of the skeps. The first skep, on the left, with its trunk-like appearance, contains movable combs held in position by means of pins. The next one has the peculiarity that it can be supered like a modern hive, though its cylindrical shape precludes the use of movable combs.

The editor permitting, I will give, in a future contribution, a description of the way the skeppist treats his bees and gets his honey. I will not neglect to mention that for students there is a special beestand at the institute (No. 20, Fig. 1) on which manipulation

can be practiced and the necessary skill acquired.

The work-shop and store-rooms are close to the bee-garden, and accessible over the stairs *a*, Fig. 1; *b* is a storing-room for timber; *c c* are work-shops in which the students are taught to make hives, etc.; *d* is an extracting and rinsing room; *e*, an office; *f*, a bee-tight comb-chamber.

The museum contains hives and appliances of the past that are of historical value.

Very little stress is laid on honey production, for this garden is mainly devoted to instruction and scientific and practical studies. However, the institute would lose somewhat if the feature of honey production were entirely neglected. For that purpose a few out-apiaries are maintained. One of these is so well situated that it answers all requirements for a fertilizing station for queens. Race culture is the motto in the queen-rearing line now in this country; and by "race culture" it is always the black bee that is meant; all efforts are made to purify and improve the neglected blacks. I hope to be able to devote to this matter a special article later on.

According to its aim and its special tasks the work in the bee-garden is carried on with every precaution possible against the danger of infection. The different beestands are distributed over a large area, and each one is placed on a pavement consisting of plates of lime which are carefully cleansed every day. Combs belonging to different hives are never interchanged; each frame bears the number of the hive to which it belongs. No comb is used longer than two years in view of the fact that



13. Students of a short course held at the Royal Institute for Bee Culture at Erlangen, Germany. 1. Professor Dr. Fleischmann, the director; 2. Professor Dr. Zander, the managing director of the institute.

it is the comb that carries the germs of disease—the more easily the older it is.

A number of short courses are held annually to instruct beekeepers in all branches of the craft. Fig. 13 shows a group of students who attended a short course in 1911. After my description of the institute this photo might be of interest, as it shows, in the midst of the students, the men whose efforts built up the institute and whose spirit permeates its works and doings.

It is, after all, the spirit emanating from such a place of science and practical work that imparts deeper and more lasting results than the teaching of mere science, however exact and wonderful, or the teaching of mere practice, however useful and profitable.

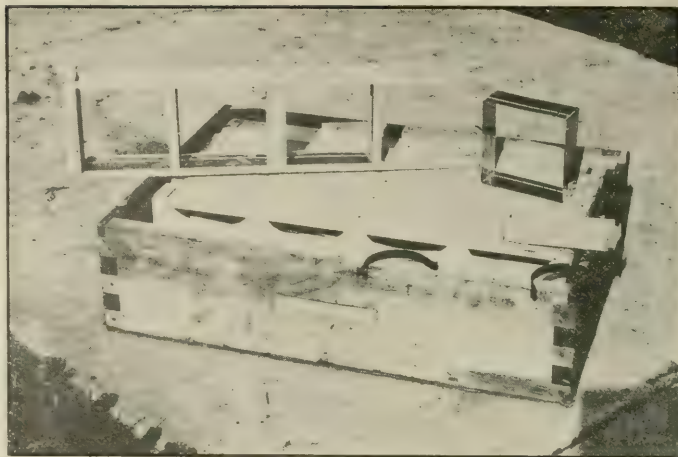
Wendhausen bei Hildesheim, Germany.

COMB HONEY IN TIN SECTIONS

An Entirely New Method of Marketing Comb Honey, Obviating Much of the Loss from Breakage

BY PAUL HUNTEN

Too little attention has been given by the producer to the marketing of his honey. His pretty wooden sections that leave his apiary nice and clean, after passing through

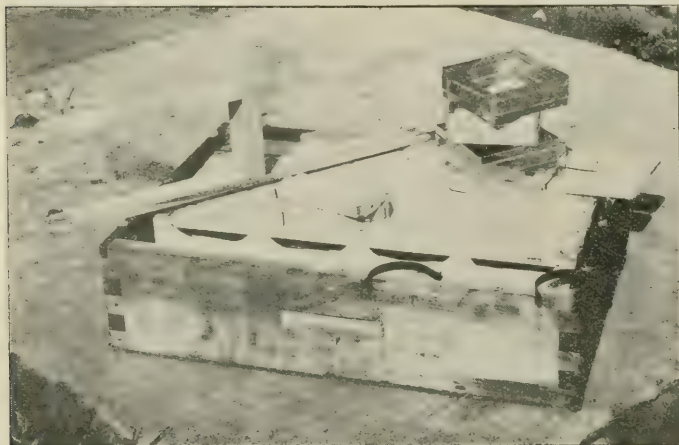


Paul Hunten's super for holding tin sections. Notice that the section-holder fully surrounds the four sections, being somewhat similar to the wide frame.

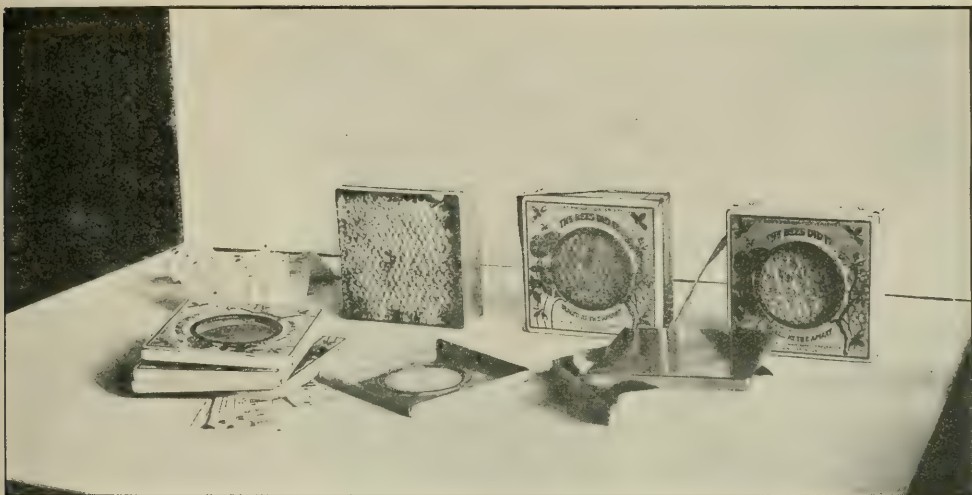
the hands of several middlemen are apt to reach the consumer with an accumulation of dust that can not be wiped off. This is sometimes barely noticeable to the naked eye, and yet the dust is there. All kinds of crackers and other food products are now put up in separate packages instead of in bulk, and the consumers are glad to pay the extra price for the sake of having the food free from contamination. I know of a case of honey that stood in a prominent place in the only store of a town; and, although it remained there for weeks, the contents were sold very slowly. In order to call attention to the honey it was often taken out of the display package and put in the show-window, where it gathered dust and germs. For some time I had been working on the new plan of using *tin* sections; and as soon as I had fifty pack-

ages off my hives and ready for market in the tin boxes I displayed in this store in competition with the wooden sections; and, though the latter had been on sale for some time, the clerks told me that the entire lot of fifty tin boxes could have been sold inside of an hour.

The three illustrations show my super with the section-holders, and also some of my honey as it appears ready for market. There is absolutely no



The section-holder with the four tin sections slipped out, the end-bars being removable.



Labels, tin boxes, and the finished package ready for market. The tin covers, one of them having a celluloid front, are slipped over the tin section, melted wax being used to make a tight package, and then the label is put on, extending completely around the box.

difference in the storing of honey by bees in wood and in tin. This was proven under my own supervision during a test with 2500 tin sections and as many more wooden sections. All were filled without noticeable difference in the time required.

There seem to be two principal objections

at present. One is the light weight of the honey in the tin sections, and the other is the cost. The light weight will be remedied by the use of fences that are properly spaced to bring the cappings nearer the surface, and to prevent pop-holes in the honey as much as possible.



Vanderwerken's apiary at Stamford, Ct., at close range.



Mr. Vanderwerken in the midst of one of his strong colonies.

The cost is a harder matter to overcome, as thousands of producers will have to become convinced that it is only a reasonable advance, necessitated by a change from an unsanitary to a sanitary package. The labor of putting up the honey seems to be about the same; but the material will naturally and unavoidably cost more. I have mailed sections of honey to various correspondents; and, although it invariably arrives in good condition, the question in nearly every case seems to be whether it will pay to make the change on account of the additional cost.

I find that the tin package complete costs 4 cts. more than the wooden section, which extra cost is offset in a measure by the difference in expense of the shipping-cases, it being possible to use much cheaper corrugated paper cases that will hold 50 lbs. each. Moreover, there will be the bene-

fit of a reduced freight rate on less than car-load rates; that is, the honey in the tin sections goes as fourth-class instead of first-class freight. Some have expressed the doubt whether the railroad companies will maintain this rate; but I think they will, as there will be less cause for claims of breakage than in case of wooden sections.

Somerset, Col.

[It may be said to the credit of our correspondent that he has gone ahead at his own expense in experimenting with the tin sections, making changes wherever necessary, and cutting and trying to find the best combination, all things considered. While perfection has undoubtedly not yet been reached, the matter has gone far enough to deserve careful attention on the part of comb-honey producers.

There is another point not touched upon in the above. Much comb honey is spoiled by being put in a cold,

damp place. In this tin package, owing to the fact that the honey is practically hermetically sealed, there should be little change brought about by unfavorable conditions of atmosphere.

As we look at it, the whole matter hinges on the expense. In other words, will the lower freight rate, the smaller amount of breakage, and the protection from dust and germs, offset the relatively great expense of the package?—Ed.]

MY MOST EFFICIENT AND ENTHUSIASTIC PUPIL

BY EDWARD F. BIGELOW.

In a former number of GLEANINGS I paid my respects to Mr. L. C. Root, the veteran beekeeper of Stamford, Ct., who was my teacher and my inspiration when I first began to study bees. It now affords me

pleasure to introduce to the general public a man well known in Connecticut, and especially in Fairfield County, as the most ardent, devoted, and active beekeeper in existence—a man whom I am proud to claim as my pupil. In a genealogy of apiologists I might perhaps justly include him in the list of Mr. Root's immediate descendants—at least as his apiarian grandchild.

Mr. E. Vanderwerken was my next-door neighbor when I lived in Stamford, and for several years was generally indifferent to my beekeeping proclivities as well as to some other things of the kind so dear to a naturalist. Indeed, I thought him of all people perhaps the least likely to become a student of the bee, and enthusiastic in the subject, because he and his family so strenuously objected to the appearance of my pets on his side of the fence, and above the sidewalk that they must traverse every day. My apiary was only about fifteen feet from the sidewalk. Indeed, my nearest neighbor's objections became so active that the health officer was sent in to investigate, because they thought there must be some serious trouble at the laboratory, near the apiary, as a mysterious aroma pervaded the entire street. This, as has been previously explained to readers of this magazine, was in the autumn when the delightful perfume of the goldenrod was very strong. Mr. Vanderwerken and the members of his family now regard such objections as jokes, and the other day he telephoned to say that my henhouse is still next door, meaning that the odor of the nectar gathered by the bees from the goldenrod is now at its height.

Some efficient and enthusiastic beekeepers date their interest from earliest childhood; others, in later life, come gradually into the joys of beekeeping; while still others are what one may call a sudden conversion with a baptism of sorrow. My pupil is in the latter class. His apiarian baptism consisted of more than a hundred stings, which, I suppose, accounts for his fierce and fiery interest.

About half way between my home and his (a distance of only a few rods) is an extremely tall tree. One day one of my finest swarms made the air black with swiftly glancing lines that moved slowly around the apiary, and upward and upward, almost to the very top of that tree. There they settled and hung, an alluring, tantalizing attraction, too far up, I decided, for me or any one else on my premises to climb. They remained there for two or three days; and Mr. Vanderwerken, going

to and from his office, stopped every morning, noon, and night, to express his regret that so fine a colony should be lost. The third day was drizzly, rainy, foggy, misty—a generally moist and sticky day. It appears to have been a leisure day with Mr. Vanderwerken, because he came and volunteered to climb that tree if I would supply him with a veil and gloves. I tried to dissuade him, by magnifying the danger, and I assured him that the swarm was not worth the risk; but he seemed to be fascinated by an irresistible impulse to capture that colony. Finally we obtained a long ladder, and I furnished him with veil and gloves. The ladder was wet; the tree was wet; the bees were wet; and to say that they were cross is to speak mildly. When he arrived among the branches, the cynosure of many admiring eyes (because the neighbors had gathered to see the performance, those bees showed fight, and sent out every warrior in the colony to repel the approaching novice. Neither Mr. Vanderwerken nor any other human being could withstand such an onslaught. The veil was wet; it stuck to his face and was useless. He could not even stop to use the ladder, but slid down that tree as hastily as a fireman, awakened by a midnight alarm, slides down the pole without wasting time on the stairs. It was the most successful instance of attack and retreat that I have ever seen. Mr. Vanderwerken, completely covered with bees, fled into the bush, and there fought with hands and leafy branches to drive away the angry insects. The attack was nearly a fatal one for him; and I wonder if he realizes, even with his later expert knowledge of bees, just how dangerous it was. He was obliged to remain in bed for a time, until his suffering was alleviated.

But by this very experience an unexpected result was achieved. He became a beekeeper. It seems as if every sting was a hypodermic dose of enthusiasm, and to this day it remains in his blood. In my experiences with many and various beekeepers I have not known another one so enthusiastic. He began with two or three colonies; he attended conventions; he talked long and constantly about the delights of beekeeping; he buttonholed his friends in the street; he suspended work in his office, and the result is that he now possesses one of the finest apiaries that I have ever had the pleasure to see; yet when I first saw it I did not realize its perfection, because visually it is irregular, and mottled and speckled. There were, at my visit, boxes of high and low degree, all sorts and

sizes, covered with rough roofs on which tar paper was tacked. In every direction was a display of old carpets, cast-off clothing, bedquilts, blankets—every thing. I never saw such a medley. It outrivaled the apiaries of box hives and hollow logs that were common several decades ago, and may now be seen in a few remote farming districts. But this apiary was not chaotic on account of neglect nor of a lack of knowledge. It represented skill of the highest type. Mr. Vanderwerken has silenced Mr. Hutchinson's slogan. Mr. Hutchinson advocated, "Keep more bees." Mr. Vanderwerken says, "Take better care of those you have. Keep them warm and they will work." Within this conglomeration of packing boxes and old bedquilts were the best and finest ten-frame dovetail hives. Mr. Vanderwerken uses the boxes merely as an outer shell within which he puts strips of waste paper secured from a local printing-house. Some of the hives were packed with leaves, but most of them had the paper trimmings which, he assured me, are better than leaves. Many of the hives have three or even four stories, making as high as forty frames, and every frame is loaded to its utmost capacity with pure honey. The twenty-two colonies in his apiary are unquestionably in a finer condition than those in any other that I have ever visited. Although it was a warm day in the first week of September, he was applying the carpets and bedquilts and tar-paper roofings, and various other forms of protection, as liberally as one might expect to see with the thermometer below zero. My pupil has taught me what most of us are slow to learn—that, if we keep the bees warm for the whole twenty-four hours, they will work for twenty-four hours.

In his apiary there is no desertion of super or upper story on cold nights; the bees keep hustling every minute. Then, too, this efficient beekeeper has learned the secret of the survival of the fittest. Only the very best queens are tolerated in his apiary. He has rejected and selected until there he has obtained the highest efficiency in bee work. The combs were beautifully clean, and in perfect condition; and, best of all, the bees were working.

Mr. Vanderwerken takes care of his bees. He has a strong affection for them, and he has so experimented, so gleaned from the experiences of others, and withal put so much thought and labor into his apiary, that I award it the first premium, notwithstanding its somewhat ragged and unattractive appearance. I am glad to ac-

knowledge that my unexpected pupil has become one of the most efficient teachers in the art of honey-producing, and in enthusiastic admiration for the wonderful *Apis mellifica*.

Arcadia, Sound Beach, Ct.

[The two illustrations shown herewith, and the cover picture for this issue, serve to finish the introduction of Mr. Vanderwerken, and to prepare the way for his article which follows.—ED.]

BEEKEEPING IN CONNECTICUT

Honey from Clover of the First Year's Growth

BY E. VANDERWERKEN

Our season just past proved a good one. Goldenrod did not yield as well as it has in some years; but the clover yield was the best we have had for some time. Some have declared that the first year's growth of white clover does not yield nectar. Now, we have had absolutely no clover for two years, and yet this year it yielded the best in a long time. Mr. Coley, who is the most extensive producer in the State, having 350 colonies, says that the clover yield was the best he has seen for years.

Mr. Allen Latham's specialty is sumac, as there are great fields of it around him. This, however, did not yield in our locality as well as usual this year, and I think Mr. Latham says the same of his locality.

I have not done any extracting yet, as I want to get all the aster honey I can away from the bees, as it has not proven to be the best winter food. My colonies are in fine condition. I have twenty-two in the home yard, and six outside. Mr. Bigelow says he can not see how I get such strong colonies. I had one swarm which came out this season which I am afraid I can not get into a ten-frame hive.

For winter I use the sealed super cover or pasteboard over the hive, and over this I put a case packed with dry leaves or thin shavings of paper, which I get at a publishing house for 60 cts. a bale. I leave the entrances wide open. Some make the mistake of closing the entrances, and the hives get cold and damp, and there is too much mold. I have never lost a colony by my method; but sometimes one will show an unusual death rate. When this is the case I wait for a warm day, open the hive, take out three or four combs of honey, and replace it with combs of syrup made as thick as honey in the same number of combs. If the hive is damp I change the combs of bees to a dry one and pack

them again. I have never lost one after such treatment, in spite of the fact that I have been told that, after a colony gets started in this way, it is apt to die before spring. But the bees always show a marked improvement after the change of stores, and come through all right.

A BEE DISEASE RESEMBLING NOSEMA APIS.

A strange disease has appeared among the bees in this State. Sometimes it is accompanied by bee dysentery, but not always. Mr. Coley has had three cases, and has reported others that he saw during his work as foul-brood inspector. He says his own affected colonies died. I had one case, but I did not lose it, as I requeened, and the bees seemed to outgrow the trouble. The bees come out on the alighting-board, surround one bee that seems to be affected, and act as though they wanted to pull it to pieces. The one attacked makes no resistance, even though there may be four or five bees around it. After a time, when it would seem as though the one bee would be nearly killed, the others will stop mauling it about, and it will fly away as though nothing were the matter. Very often the healthy bees will pull out the sick ones and roll them off the alighting-board on to the ground, so that the ground is covered with them. In the one case I had, the queen was a fine-looking one and a good layer. I kept close watch all summer; and, though they have not built up well or stored much honey, I think they will pull through the winter if the trouble does not break out again. If it does, I shall brimstone the bees. We sent a number of the affected bees to Dr. Phillips, and he reported that he could not tell what the trouble was. I have read some of Dr. Zander's articles on *Nosema apis*, and I am of the opinion that *that* is the trouble. I have found traces of it among some of my strong colonies.

If this scourge should become epidemic, foul brood would be in the background so far as loss is concerned. We have foul brood all around us, which is quite enough without any new trouble.

Stamford, Ct.

THE FACTS ABOUT BEEKEEPING IN CENTRAL FLORIDA

BY DR. L. A. SIMMON.

Beekeeping in Florida was written up last year by Mr. E. G. Baldwin; but he wrote of localities where commercial beekeeping is a possibility, and of men who have devoted years to the business, and are princes in the art. It was inspiring

to read his articles, and especially concerning the tupelo belt, where "shiploads of honey go to waste for want of bees to gather it." It should be known, however, that a large area of the State is deprived of the conditions that make beekeeping on a large scale a profitable occupation. That portion of the State known as the "High Land Lake Region," high pine land, and the "Flat Woods" adjoining, produce but few of the honey-bearing plants and trees, and none of those found along the rivers and coast.

The promiscuous summer and fall flowers that grow in great profusion over the wooded lands afford but little honey, but furnish an abundance of pollen. Orange bloom is the chief source of surplus honey. The trees bloom some years as early as February. Last year they did not bloom until in March and April. In order to secure a good crop of orange honey it is necessary to feed the bees in January to stimulate early breeding and have strong colonies when the trees bloom. Orange bloom lasts about two weeks, and, occasionally, is drawn out to three. Gallberry and saw palmetto succeed orange bloom; and if it were not for the fact that the cattle men burn the woods over once a year they would afford considerable honey of a light-amber color and good flavor. But the plants have been so crippled and killed out that this source furnishes barely enough to carry the bees over the summer months. It is my practice to extract the orange honey at the end of the flow. It is then capped over, and ripe. I allow the bees to keep all the honey from all other sources. As a result I have to commence feeding my bees in August, and feed them more or less all fall and winter. Without a knowledge of the impending dearth that begins with the rainy season, which usually sets in about the first of June or July, the bees continue their high-pressure brood-raising during the secretion of gallberry and palmetto honey, which consumes this stock of stores. When it rains every day for two or three weeks, and they begin to discover their predicament, out of honey and none to be found, they begin to retrench by carrying out their larvæ, destroying all eggs, and in every way possible conserving their limited resources. It is *before* this occurs that the vigilant beekeeper must come to their aid. If not, they soon begin to dwindle, and a weak colony of old bees is hard to rejuvenate, and of little value.

Owing to the fact that bees can fly almost every day in the winter months, the

mortality here in the South is much greater than at the North, where they semi-hibernate. As a result, more or less brood-raising is continued all winter provided the bees are furnished the necessary food. Bee-keeping in this part of Florida is a rather difficult problem to the beginner and to most of the native people. As a result, but few bees are kept in a modern way, and those that are kept in "gums" and box hives succumb to the moth-worms and ants in due time. Fortunately we have no foul brood now; and, notwithstanding the fact that bees require feeding a long time if any honey is secured, yet it will pay every owner of an orange-grove to keep a few colonies of bees, and properly care for them, in order to secure the perfect pollination and fertilization of his bloom. The added increase of fruit will more than pay for all the sugar, time, and trouble expended.

Auburndale, Fla.

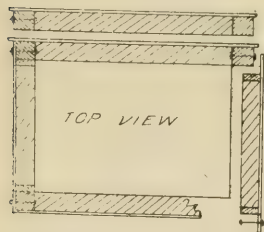
A WINTER CASE FOR ONE COLONY, WHICH MAY BE TAKEN APART

BY H. FISBECK

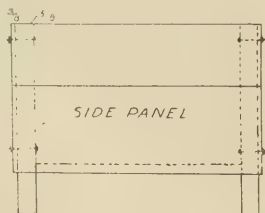
Having read the different methods for packing bees for winter in the Sept. 1st issue, I feel as though I should like to give my method in the past and for the future.

After taking out the two outside frames of honey I see that the remaining eight L.

frames contain at least 25 pounds. The empty spaces are filled with pads of newspapers (the outside sheet being a sheet of oiled craft paper) tightly squeezed



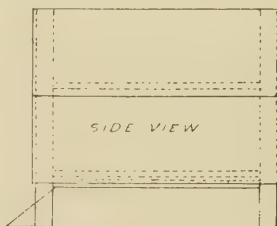
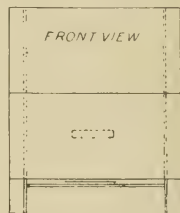
in. These pads rest on small sticks on the bottom-board, allowing any water that might accumulate to run under. A $\frac{3}{8}$ -inch board, the same dimensions as the inside of the hive, separates the paper from the combs. A tin spacer is nailed on the bottom of each end of the boards to keep them straight in the hive. I then put on a bee-escape board, leaving out the Porter bee-escape for upward ventilation. When brood-rearing



starts I close up this hole. Closing up this hole in spring, I believe, is a means of supplying bees with water, for it condenses more readily in a sealed hive.

I then place over the hive the winter case, of which I enclose the plans. The case is first bolted (not tight) and set down over the hive. The paper pads like those described before are set down in between the hive and case. The reason I like these pads is because, when spring arrives, there is not a muss made in taking out the packing. Any way, I am a firm believer in paper for keeping in the heat. On top of the cover shavings a foot deep. I

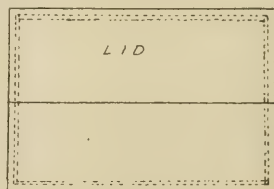
I put on a cushion of then put on the winter-case lid which has a sheet of rubberoid laid on, lapping over. Then a strip of tar paper is wrapped around the four sides of the case, being lapped in the front. The ends of the bolts are forced through the paper, and the washers and nuts tightened. This tightening makes the packing one solid mass of paper. I then push in a row of thumb-tacks around the top and bottom of the tar paper.



The paper pads are made by folding an ordinary newspaper in half and placing one paper inside another, etc. That necessitates making each inside paper

smaller than the one it is placed in. They are $1\frac{1}{2}$ and $1\frac{3}{4}$ inches thick. These pads are saved for the next winter, etc.

The principal advantage of this case is its cheapness, and its being easily stored away in the summer. This case is large enough in this latitude. My smallest colony wintered perfectly through the last very severe season. Colonies can be easily in-



spected by lifting off the lid and taking out the cushion of shavings and hive cover. St. Louis, Mo.

A LOW TEMPERATURE IN BEE-CELLARS

Not Much Harm Done if Air is very Dry

BY ELMER HUTCHINSON

On page 648, Oct. 15, the editor takes exceptions to my statement that bees can be safely wintered in a cellar with a long-continued temperature as low as 34 degrees. I know that is the generally accepted opinion. Mr. James Heddon once wrote that cold in a cellar is a giant. But I added several provisos; first, there must be strong colonies of healthy bees; second, they must be well supplied with good stores; and right here is where I believe a good many fall down in wintering bees. They don't make sure that the colonies have stores enough. Where the bees are short they seemingly consume more than if they had plenty; and that very fact has a tendency to keep them uneasy. Then if the combs have at least 40 lbs. of good honey or thick sugar syrup in them they get warmed through by the bees, and are a big help in keeping an even temperature inside the hive. I may say here that I have fed more than 5000 lbs. of sugar this fall to put my bees in that desirable condition for winter.

Like Dr. C. C. Miller, I believe one of the main essentials is pure air, and plenty of it. I have always noticed that, when the air gets foul in a bee-cellar, although all the other conditions may be perfect, the bees invariably become uneasy and begin to roar. The cellar I wintered those bees in last winter was an old one that had not been used for several winters, and was somewhat out of repair, so that there was plenty of fresh air. That was one reason it was so cold. I had intended to fix it up a little after the bees were in; but they seemed to be wintering so well that I let it go as an experiment. The thermometer was a tested instrument, so there could be no question about its being right.

Now, don't think that I advise every one to let the temperature of the bee-cellar drop to 34 and stay there; for in the majority of cases I know that it would make trouble. There would be some necessary condition lacking that would probably result in the loss of the most of the bees. I know that, when I lived further south in the State, I never could let the temperature go below 40 degrees without having the bees begin to roar; and if the cellar was not warmed up at once there was a big loss of bees

before spring. I suspect that what causes the difference is the dryness of our air here. In this locality I can be out of doors when the temperature is 20 below zero, and my body never gets cold; and I never wear an overcoat unless I am driving. When I go back to the southern part of the State in the winter, even with a heavy overcoat, I can be out of doors but a short time before I am chilled through and my teeth chatter, even if it is only a few degrees below freezing. It is all caused by the dampness of the air there, and I think that is one reason why the bees can stand more cold here in the cellar than they can further south. Therefore if the temperature in the bee-cellar is lower than 40 degrees the air *must* be very dry.

Pioneer, Mich.

LIME OVER A BROOD CHAMBER IN WINTER

Its Use Advised Back in 1880

BY ARTHUR C. MILLER

In GLEANINGS for December 1, 1880, p. 579, is an article headed "A New Idea in 'Wintering.'" It is almost or quite worth reprinting. It fits in with an article in the Sept. 1st issue. It is interesting in suggesting fused calcium chloride—a material since used for the purpose by Mr. Latham and others.

[The following is the article referred to:—Ed.]

A NEW IDEA IN WINTERING.

This will be a hard winter on bees in most parts of the country, on account of lack of good stores, and mostly old bees—a poor prospect certainly. We must help the little fellows, or make up our mind to lose them. Last winter I kept ten stocks warm, dry, and in good health by chemical means; *i. e.*, by generous use of quicklime. My other stocks had the dysentery, and every one of the chaff hives was mildewed and wet, in spite of three dryings during the winter; while the ten cushions used on the hives with lime were as dry and clean as when first made. No one will believe the amount of water quicklime takes up by chemical affinity unless he try the experiment for himself; therefore, take about one quart of it in a basin, and $\frac{1}{2}$ pint of water, which pour slowly on the lime, stirring well all the time during the slaking; and if the lime was properly made you will have a perfectly dry powder, still capable of absorbing more water before becoming damp. The action of the lime is threefold:

1. It absorbs moisture;
2. It absorbs carbon dioxide (carbonic acid);
3. It gives out a large amount of heat.

This it does slowly, and in exact proportion as it absorbs the breath of the bees; *i. e.*, much moisture, rapid chemical action, much heat. What is still more strange, this is dry heat, not moist.

This absorbing action is so slow, and the amount of heat so small that nothing but scientific instruments (hygrometer and thermometer) and the bees can appreciate the meaning of a *constant, mild, dry, pure atmosphere*. What is the use of making the bees use up their honey, worth 15 cts. per lb., to develop the requisite heat to keep themselves alive, when it can be done with lime, worth less than one cent per pound, and which is almost as valuable *after* this slaking as before? Don't believe me when I say not one of the ten hives above mentioned

used over 15 lbs. of honey (all they had) in wintering out of doors, even if it was a mild winter, for I can hardly realize it myself, even when I see the figures in my yard-book now before me.

When you try the experiment of slaking the lime, notice the heat development, but not with your finger (unless for a cartoon). I used the lime in a feeder *a la* Van Deusen, made flat, and laid broadside next the bees under a cushion. This was troublesome, requiring frequent refilling. I will use, this winter, on my weak stocks, a box made like your chaff-cushion division-board, and to hold about half a peck of lime.

Chloride of calcium (calcined) will absorb much more water than lime, and I expect much from it for these same purposes; but it will have to be contained in a water-proof vessel, as it is one of the most deliquescent substances I know of. Absence of actual experiments is the only reason that prevents me from recommending this substance to the careful beekeeper, although I am certain it would be a success. C. LOVER.

Reisterstown, Md., Oct. 18, 1880.

[In case of a weak colony with stores of poor quality, we can see that the lime might be of advantage in preventing dysentery. Or it might prove beneficial in any instance where conditions are so unfavorable as to cause dysentery. When all conditions are favorable we do not believe that the lime would pay for itself, for the amount of heat generated would be so infinitesimal at any given time that it would have no practical value.—Ed.]

BEES WORK ON DEAD-RIPE MUSHY BERRIES ONLY

BY WILLIAM BELSHAW

There is some question as to whether bees will trouble berries, p. 540, Sept. 1. I can safely say they will suck the ripe juices from blackberries. I purposely went to my blackberry patch, and saw them busy doing it. But what if they do? There are berries there enough and to spare—bushes just loaded down with berries in all stages; some just formed, and others in all shades of green, red, and black. Among the black alone there are the solid black such as would do for long shipment and for jelly; others a little riper that would do for immediate sale for making sauce and for canning; and some mushy-ripe ones that burst in the fingers while picking, and that are, consequently, useless. Now, the bees work on these mushy-ripe ones. They do not interfere with any of the others, therefore they are taking fruit that is beyond value for food.

This work of the bees is welcome; for since they take the berries on the verge of decay, they save to some extent the rest of the berries from contamination of the germs of decay. For my part I prefer to let the bees remove the dead-ripe fruit that has passed beyond the point of usefulness. Snohomish, Wash.

FURTHER NOTES ON HOW THE CORBICULA, OR POLLEN-BASKET, IS LOADED WITH POLLEN

BY F. W. L. SLADEN, F. E. S.

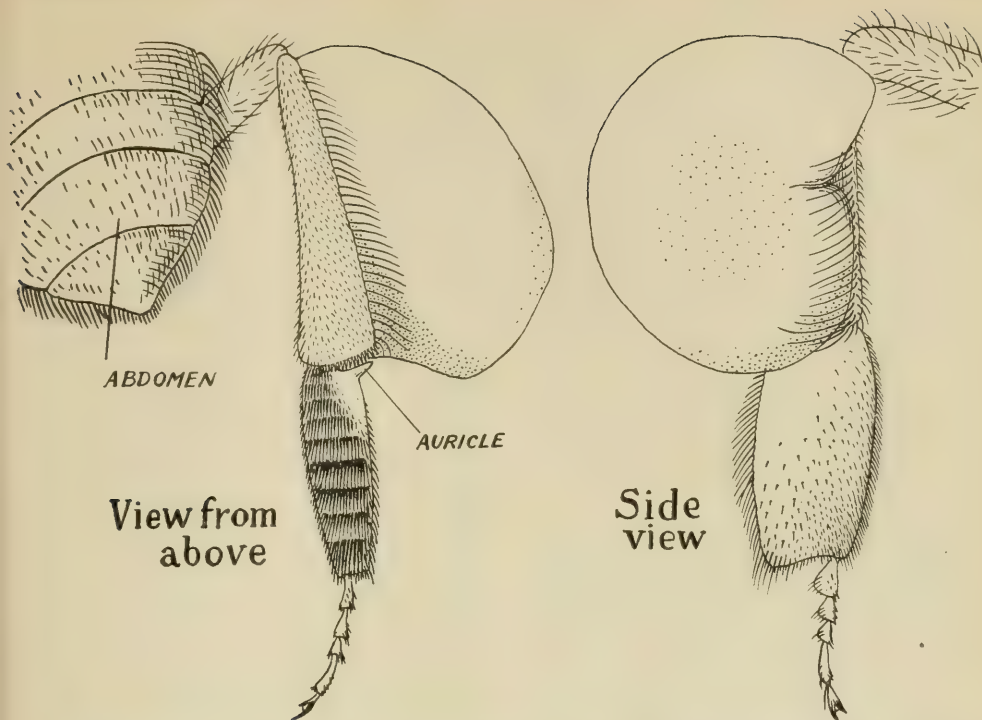
On page 172,* March 15, the writer advanced the theory that the pollen is loaded in the corbicula, or pollen-basket, situated on the outer side of the tibia of the hind leg of the worker honeybee, and of the queen and worker bumblebee, by being combed into a receiver situated on the end of the tibia and then forced up into the corbicula by a projection at the base of the metatarsus called the auricle. Three reasons for the support of the theory were given: first, the structure of the parts; second, an experiment made with a dead queen bumblebee's leg in which the auricle was made to force pollen into the corbicula artificially; third, the rubbing-together, exclusively in a longitudinal direction, of the hind metatarsi, observed in a worker honeybee collecting pollen from *Eranthis hiemalis*.

Since that article was written the flowers have opened and have offered many opportunities for investigating pollen-collecting.

On a fine morning, some weeks ago, I stopped the entrance of one of my hives with grass, and in a few minutes about a hundred pollen-laden bees had gathered there. Among them were two or three whose loads consisted of pollen of two colors. These I caught and dropped into my killing-bottle.

Going to other hives, I soon secured many bees with parti-colored loads. A careful examination of these indoors not only confirmed the above theory but showed exactly how the pellet of pollen grows. The accompanying drawing shows the loaded right leg of one of the bees that were caught. The pellet consisted of white pollen, with the exception of a small quantity of orange pollen, evidently added afterward, for the metatarsal brushes contained orange grains. The orange pollen had been forced in as a wedge between the white pollen and the corbicula, the wedge having been driven in at the corner of the corbicula that comes into contact with the auricle. The new pollen could not have gotten into the corbicula by being scraped on the upper edge of the corbicula, as Cheshire supposed, nor could it have been plastered on to the pellet with the metatarsus of the middle leg, which is the way that propolis is loaded in the corbicula (see my article, page 335, June 1), for the or-

* See also my article in the *British Bee Journal*, Dec. 14, 1911.



Right hind leg of worker bee laden with pollen of two colors, white and orange. The close dots indicate the orange color, and the remote dots pale orange color; the clear portions are white.

ange pollen was situated where no outward application could place it. The repeated forcing-up of the pollen by the auricle into the corbicula often causes the pellet to buckle about the middle, as shown in the drawing. Notice, too, the tinge of orange—rather dingy, and only skin deep—on the outer side of the pellet. This, I believe, is the footmark of the metatarsus of the middle leg, which is used to pat down and to shape the pellet as it rises and swells (see page 336, June 1). One can now understand the function of the fringe of stiff hairs around the pollen—the so-called basket-hairs. They guide and shape the swelling mass. Those on the upper edge of the tibia stand up straight and allow the pollen here to rise straight up too. But the hairs on the lower edge curve outward and upward, and they make the swelling lump of pollen do the same.

It is interesting to note that the teeth of the comb situated on the end of the tibia (see illustration, page 173, March 15), that are used to comb the pollen out of the metatarsal brush (of the opposite leg) have their tips about the same distance apart as most of the bristles in the metatarsal brush, namely, about 1-25 of a millimeter.

A suitable name for the receiver for pol-

len at the end of the tibia is the *excipula* (Latin, receptacle); and for the entrance to the corbicula, the *limen* (Latin, threshold).

The clothing on the *limen*, the function of which is evidently to form a surface for the first contributions of pollen to cling to, varies in different species of bees, and makes an interesting study. In most species of bumblebees the *limen* bears a dense coat of moss-like fluff, beyond which stand about three long stout hairs widely separated from one another; but in some species, notably *Bombus violaceus*, a native of Brazil, the fluff is bordered on the inside with fine hairs; and in *B. confusus*, a central-European species, the fluff is very long and dense, and the long stout hairs are usually reduced to one stunted example. In the honeybee the *limen* looks bare when viewed from above; but if it is viewed endwise, and suitably illuminated, it will be found to be clothed with fine fairly long fluff.

Some way, inside the entrance to the corbicula, near its upper margin, there is a single long hair (not shown in the drawing on page 173). I have examined several specimens, and have found this hair present on each of them.

Ripple Court, Dover, Eng.

Beekeeping in the Southwest—Continued from page 720

of them are shipped by the producers to hundreds of towns and smaller cities, I saw no real reason why these same packages should not be handled by the large city grocers.

The packages referred to and adopted as standard in Texas for both bulk comb and extracted honey are the two 60-lb. square cans to a case; ten 12-pound friction pails to a case; ten 6-pound and twenty 3-pound friction-top pails to the case. Many carloads of these are used annually—the ten 12-pound and ten 6-pound sizes being the most popular.

My investigations revealed, however, that the richer class of people of the city do not pay so much attention to the matter of cheapness in buying as to the appearance of the article.

GLASS PACKAGES FOR THE FANCY TRADE.

I found, therefore, that glass bottles and jars please these well-to-do people. I further ascertained that it is almost impossible for these stores to sell a larger package of honey than a 50-cent size, and that a 30 or 35 cent size is the best seller. My own observation and experience in disposing of honey at fairs has revealed this same thing. It is true that some persons will buy larger packages at a fair; but it must be remembered that, as a usual thing, these purchasers are not of the better-to-do class.

TIN PACKAGES FOR THE MASSES.

As soon as we leave the strictly fancy city-trade grocers we find those who have the average-to-do persons for their customers. In these stores it is no trick to sell a larger package at a time, provided it is cheap enough. The most economical package then is the tin pail. But even in case of these, only the smaller sizes, 3 and 6 pound pails, are in most demand. In the general stores, however, on the very outskirts of the large city, or in the general-merchandise stores of all the smaller cities and towns, the larger packages are most in demand. Here the country trade predominates, and the well-to-farmer purchases his honey in the 12-pound or gallon pail, just as he buys his dollar's worth of sugar and coffee. These stores are the ones which usually prefer to order direct from the producer in case lots, thereby saving the middleman's profits.

WHERE THE 60-LB. CANS COME IN.

It is in these stores, also, that much honey is still sold out by weight from the large square 60-lb. cans, the purchaser usually furnishing the vessel. Of course many 60-pound cans are also bought by a single family. These purchases are rather few

as compared to the 12 and 6 pound-package sales.

It might be well to state that the 60-pound can is not as popular as it used to be, especially for bulk comb honey. This is according to my experience at least. It may have been brought about by the fact, however, that we have made the 12 and 20 pound pails more of a specialty. At the same time, though we quote the prices of each kind in our lists, yet the orders received show a decided favor for the above-mentioned pails.

From the beekeeper's standpoint there is an advantage in furnishing these sizes over the 60-pound cans. While the pails cost a little more per case, it does not require as much comb honey for packing them. As the comb honey is the most expensive part of the contents, this is an item of importance. It must not be forgotten, either, that the price for the 12-pound pails, by the case, is $\frac{1}{2}$ cent per pound more than the 60-pound cans, and 1 cent more for the 6-pound pails. On a large crop, amounting to several hundred cases, the extra profit amounts to a good many dollars. It is enough to be worth considering by the beekeeper. I investigated this especially, since a number of beekeepers have argued this point, favoring the 60-pound cans rather than smaller sizes.

THE SUMMING-UP.

The conclusion derived is that one must study his markets closely; for that which sells in one place very readily may not in another. As a result of my investigation I find that I must furnish my choice product in fancy glass to the city fancy retail grocer, while the market for the more economical package is found in the suburban stores and those of the smaller cities and towns. The wealthy farmer is the best customer for a larger quantity at a more moderate price. And here is one point in this connection which I wish every beekeeper would think about more seriously. That is, to make a greater effort for a more general and wider distribution of honey. Instead of glutting the large cities, it is of the utmost importance to fill the wants of the general masses who are to be found nearer the towns and country places, and on the farms where no bees are kept.

I do not wish to be understood as being against furnishing the city markets with their share of honey; but I do raise an objection against the too common practice of looking toward these markets and neglecting the market nearer home.

Heads of Grain from Different Fields

Are Redwood Hives More Immune to Bee Disease than Hives of Pine?

An extensive beekeeper of Saltriver Valley uses redwood exclusively for the hives in all of his apiaries. He buys a great many colonies of bees throughout the valley, but they must be in hives made of redwood or he passes them by.

This man claimed bees are free from diseases when occupying the redwood hive.

If I am not mistaken, the redwood is a species of cedar or fir family; and I guess the most of us know what a panic the oil of cedar creates among insects when applied to them, that bother us in our houses. My bees are mostly in the redwood hive, unpainted. The oil in the paint destroys the effect of the oil of cedar in the redwood lumber. Bees could not be healthier than mine are.

Phoenix, Ariz., Oct. 25. L. M. BROWN.

[Some years ago we traveled extensively through the redwood districts, or, rather, where the redwood hives were used, and our recollection is that foul brood was just as common in hives made of that as of pine or any other material. While cedar chests are supposed to keep out moths that will eat into fur or woollen goods, it should be understood that the moths themselves are very different in general characteristics from the microbes that cause foul brood, both American and European. Your friend, the extensive beekeeper, must be entirely mistaken in believing that redwood has any thing to do with keeping out the bacteria of bee diseases. If there were any thing in his idea, the Bureau of Entomology would have known it long ago.—ED.]

A Swarm Hangs on a Limb Nearly Two Months without Building Comb

On September 11, six weeks ago to-day, some boys called my attention to a swarm of bees clustered on the limb of a large white-oak tree, about fifty feet from the ground. As the tree stands in front of my house it has been easy to watch them. The swarm was a large one. No one is positive when the bees settled there, although workmen in the fields near my house say that they saw a swarm pass and go into the grove the last of July, and they tried to find them but failed. To my knowledge this swarm has been there six weeks, and for the past four weeks it has been gradually growing smaller, due to clumps of bees dropping off to the ground from weakness, particularly on cool mornings, until this morning the cluster was not larger than a man's fist. Since I first noticed the cluster it has moved gradually about six feet further out on the limb. Is it not very unusual for a swarm to hang like this until the bees starve?

Later.—The last of the swarm dropped from the limb on the 20th or 21st of this month, and all died on the ground beneath the limb. There was no comb built anywhere on the limb.

Blackstone, Va., Oct. 16. N. S. MAYO.

[It is unusual that a swarm should hang on a limb so long in the open without making at least some attempt to build comb. There have been reports of outdoor colonies; but in every instance that we have known, the bees have built combs on the limb and made an attempt at establishing conditions as nearly as possible resembling those inside of a hive; but even such outdoor colonies usually dwindle away to almost nothing at the approach of cold weather.—ED.]

Are Carniolans Prone to Supersede their Queen?

In one of Dr. Miller's Straws, page 612, Oct. 1, he quotes Editor Gerstung as saying that bees generally supersede their queens during the spring. Are these bees Carniolans? My experience with these bees is that they are invariably well ahead in numbers in the spring, and during fruit-bloom supersede, swarming with the first-hatched queen. I have had this happen several times, and with three different strains of bees. I attribute this to the exceedingly rapid way these bees build up, the queens being worn out early. Or is it due to their being naturally short-lived? I am inclined to think that the excessive swarming experienced is due to this superseding. In this country they have the reputation of being excessive brood-rearers—that is to say, they

keep on rearing brood in quantity, right through the honey-flow, using up the greater part of the income. Their crosses, particularly with blacks, are invariably vicious, and on these counts I have decided to clear them out.

I am unable to understand how it is that, with you, blacks have such a bad name. Probably they are not quite the same variety as ours. I am convinced that, taking one season with another, blacks of a good strain are the best for us, and particularly is this so when sections are run for. I am free to admit that some Italians I have had are first rate, for extracted. I shall be glad to hear whether your experience with Carniolans coincides with mine.

H. H. BROOK.

13 Westgate Hall, Altrincham, England, Oct. 12.

[Your experience with Carniolans is very much the same as ours. They are excessive swarmers, in season and out of season; and since you mention it, part of this excess of swarming may be due to the tendency of the bees to supersede their queens. As you say, they are heavy breeders in the spring, and they breed heavily when the honey-flow is on. Naturally enough, this would tend to cause supersede a little earlier than it would with the Italians.

We would be pleased to get reports from those who have tried Carniolans pretty extensively; because the more thoroughly we understand their peculiar habits, the better able we shall be to hold in check some of these undesirable tendencies.

With regard to black bees, from reports we have received we are convinced that the English strain of these bees is much superior to those in America.—ED.]

A Protest Against Mending Broken Comb Honey with Paraffine

I note the reference to the plan of mending the cappings with warm paraffine, p. 617, Oct. 1. After looking in vain for a footnote or comment on the above article, I can not but believe that the sin of omission is as great as if not greater than the one of commission. One of the worst of the comb-honey canards is the general belief by the public that paraffine is mixed with honey, or, rather, is manufactured into comb, and I am surprised that you would permit any one to advocate daubing up comb honey with it, without a word of caution on your part.

Dewey, Okla.

M. H. HILL.

[The amount of paraffine used would be so very small that there certainly could be no objection to it, providing one could afford to give the time to patch up here and there a broken cell. Moreover, paraffine melts at a lower temperature than beeswax, and this one fact would make it possible to make repairs with it when it would not be practicable to use bleached beeswax. Hot beeswax applied to the cappings of ordinary comb would, of course, melt the other beeswax with which it comes in contact; whereas a hot paraffine, relatively somewhat cooler, would not affect the beeswax.

While we most strenuously object to making foundation out of paraffine or using it in any large way in the bee business we can not see that there is any objection to its use in the manner related by our correspondent on page 617, Oct. 1. As a matter of fact, it will be impracticable to use paraffine to make repairs on comb, for the simple reason that the time consumed in applying it would more than offset any possible increase in price that the section would receive from the repair. We do not think our correspondent needs to worry over the thing, for the process can never be a commercial possibility.—ED.]

New State Beekeepers' Organization of Massachusetts

On September 14, at the State Mutual Restaurant, Worcester, Mass., Mr. J. B. Levens, of Malden; O. F. Fuller, Blackstone; J. L. Byard, Marlboro; A. A. Byard, West Chesterfield, N. H.; Arthur Monroe, Spencer; and Dr. B. N. Gates, of Amherst, met at an informal dinner for the purpose of discussing the advisability and method of forming a State beekeepers' association for Massachusetts. The invitation to this meeting was extended by Dr. Burton N. Gates, of the Massachusetts Agricultural

College, acting as Secretary of the Hampshire, Hampden, and Franklin Beekeepers' Association, who voted last spring to further the organization of a State society in which there should be representation and co-ordination of the various local societies of the State.

The sense of those present in Worcester was so unanimously in favor of the movement that it was voted to form an association to be known as the State Beekeepers' Association of Massachusetts. Provisional officers were elected by unanimous vote as follows: President, John L. Byard; Vice-president, J. B. Levens; Secretary-treasurer, Burton N. Gates.

The constitution and by-laws were discussed, a memorandum drawn up and authorized, and submitted to a committee composed of presidents and others of the several societies now existing. It was further voted to hold the first annual meeting of the organization on the second Saturday in January, 1913, as a joint meeting with the Worcester County Beekeepers' Association, in Worcester. It was furthermore voted to announce this organization through the courtesy of GLEANINGS.

Briefly, the organization is designed as a medium of union and co-ordination of the various loyal societies in Massachusetts for the purpose of devising and promoting measures that are of general interest to the beekeepers of the State, and to encourage the organization of local co-operation in the several districts of the State, as well as to promote and impress upon the public the importance and value of the beekeeping industry.

Since this organization is distinctly in the interest of individual beekeepers of the State, the Secretary solicits your suggestions, and will gladly correspond with those interested.

BURTON N. GATES.
Amherst, Mass., September 25.

Lining the Wire Cloth of Queen-cages

Some time ago I wrote suggesting that the wire netting on the queen-cages be covered so that the bees might not come in contact with it. The reason for my suggestion was this: I found that, if one cage of bees arrived dead, the whole lot were dead, and *vice versa*. I argued that the same hand that put in one cage put in all, and all in the same position. Whatever position one assumed they all assumed. I found that, if a lot came alive, they came in fine order. It seemed to me probable that this difference depended on whether the wire netting formed the floor or the roof on the voyage. If the former it became coated with bee food, and the rust in turn killed the bees in their cleaning-up. The last lot you sent me came in excellent order—all five—and I observed you had adopted my suggestion, and covered the wire. It is the suggestion of ignorance again. I may mention that the exit hole and three tiny holes in the side were all the ventilation the bees had. Under an adverse situation would this suffice? The bees had just begun to eat down the cover of wire, but this was quite fresh. Every cage had about half of one side eaten away.

When removing a super of honey I found a single queen cell sealed with royal jelly and live larvae. There was not a single egg nor larva otherwise. The queen-excluder was in good order, and the queen was in the brood-chamber. In this island bees seem to yearn for the presence of a queen above, and will readily raise queens there. I think this is convincing proof that bees will transfer eggs.

W. G. HUTCHINSON.

St. Joseph Rectory, Barbadoes, Oct. 7.

[We can see no reason why wire cloth, whether it be next to the little bunch of bees in a mailing cage, or protected, so it does not come in contact with them, would have any effect one way or the other. The very fact that you notice that, whenever the bees in one cage are all right, the bees in the other cages are also, points strongly to another cause for the death of the bees and queens. Sometimes the contents of mail-sacks are fumigated to prevent the spread of disease to human beings. If there are packages of bees in those sacks this fumigation, of course, kills the occupants of *all* the cages alike. We think, therefore, it is safe to conclude that, whenever the bees in *all* the cages are dead, the cause is not due to the wire cloth, construction of the cage, nor to the food, but to the fumigation. If, however, one or two cages of bees are alive, and the rest dead, the cause is, clearly

enough, not fumigation, but some other condition. We can not, therefore, believe that black wire cloth, such as is always used in queen-cages, could have any effect one way or the other. There is no reason why it should. But *green* wire cloth, on account of the arsenic in the paint, might do harm.—Ed.]

Do Carniolans Resist European Foul Brood More Readily than Italians?

I should like very much to learn to what extent Carniolans resist European foul brood. What has been the experience of those who have had an opportunity to compare their resistive qualities with those of the Italians? An acquaintance of mine, Mr. E. Baker, of Los Angeles, has tried Carniolans, he says, for two seasons, side by side with golden and leather-colored Italians, and in his opinion the Carniolans are twice as resistant to European foul brood as are the Italians. He spoke of a number of instances where he introduced Carniolan queens into Italian colonies that were badly affected with the disease, and in every case they effected a permanent cure. At least he says the disease has thus far failed to reappear.

Now, this is a subject upon which too much light can not be shed. It is the commonly accepted belief that Italians are the most resistant race of bees to European foul brood; but let's hear what those who have tried both races have to say.

Artesia, Cal., Oct. 9.

H. PERKINS.

[One or two reports have shown that Carniolans, like some strains of Italians, seem to be much better able to resist European foul brood than ordinary black bees. Other reports indicate they are no better. Reports so far received seem to show that a good strain of Italians will resist European foul brood much better than any of the black races.

We ourselves have had no opportunity to make any observations along this line. Let us hear from those who have had personal experience with both races during a siege of disease.—Ed.]

Dipping Queens in Water in Order to Clip the Wings More Easily

I have had some little difficulty in clipping queens, although I have tried several different kinds of tools. Mr. Y. Susuki, of Wakayama, told me of the following plan: He puts the queen into a cup of water so that she will spread her wings in the attempt to fly, in which position they may be easily clipped with scissors.

MASAMI YOSHINURA.

Shimomakuwa Mura, Motosugum, Gifuken, Japan.

[While we have not tried the plan of putting the queen into water, we feel sure that the plan recommended in the A B C and X Y Z of Bee Culture is better, for there is no danger at all if the queen is held in the manner described, the wings naturally lying in such a position that they are easily clipped without danger of clipping a leg, or injuring her otherwise. The best way is to practice on drones until one has no trouble in clipping the wings quickly. The task is then a very easy one.—Ed.]

Sections of Dark Honey for Winter Stores

Relative to the article, "The Wintering Problem," p. 630, Oct. 1, perhaps my way of preparing bees would be of some interest or benefit to those who winter on summer stands in Danzenbaker hives. I take out of the supers all inside fixtures and lay on the brood-frames 11 sections of dark honey, as I usually have a flow of dark honey in the fall. Over this I spread a burlap sack, and put on the cover. I have not lost a colony out of fifty since 1908.

J. A. KREIGHBAUM.

Hartville, Ohio, October 15.

Death of W. A. McPhail

W. A. McPhail departed this life Sept. 30, 1912, in his 81st year. He had been a subscriber to GLEANINGS since 1877. He started beekeeping in Atascosa in 1878, and closed out his business in 1905 on account of failing health. He was one of the pioneer beekeepers of Atascosa County, and owned 200 colonies at one time. His largest crop was 14,000 lbs. of extracted honey.

Floresville, Tex.

MRS. W. A. McPHAIL.

Our Homes

A. L. ROOT

Her ways are ways of pleasantness, and all her paths are peace.—PROV. 3:17.

The house of the strange woman is the way to hell, going down to the chambers of death.—PROV. 7:27.

Dear friends, you may be surprised to see the beautiful text at the head of this talk linked together, as it were, with the one just below it; and, in fact, I have placed them side by side purposely in order that both of them may shine out by the strong contrast. *Wisdom's* "ways" are contrasted with the ways of wickedness and sin. It is like the whiteness of snow when it is in contact with the blackness of soot. My talk is to be mainly under the head of the second text—life and death contrasted—spiritual life and spiritual death. Below is a clipping from the *Cleveland Plain Dealer*. Read it:

Cleveland morally is better off than it has been for ten years, police announced last night.

This is the result of the most energetic "clean-up" that police in that time have conducted of so-called grill rooms, doubtful rooming houses, questionable dance halls, and other places in what was referred to in the Baptist vice report as the "flat district."

Lieut. Thomas Martinec, placed by Chief Kohler in charge of a special vice squad of thirty-five plain-clothes men about two months ago, when the crusade was taken up, yesterday said more than 500 undesirable men and women, *mostly women*, have been sent out of town in that period.

Hundreds of girls, young women, and men nightly have been taken unceremoniously out of so-called grill rooms, rooming houses, and various other places by the special vice detail, placed in patrol wagons, and taken before Lieut. Martinec. Their names and addresses have been taken, and they have been either "golden ruled" and warned not to be caught again, or ordered out of the city.

"We have seen that every one of the 500, and more ordered out of town actually did go," declared Lieut. Martinec. "In every single case a plain-clothes man went along to see that they gathered under their effects, bought a railroad ticket, and were aboard their trains."

The past week marked the culmination of the "clean up" that has rid Cleveland of so many undesirables. Police Inspector Rowe last night declared himself well satisfied with Cleveland's present moral tone, adding that the city is cleaner than it has been in years.

Just how much longer the plain-clothes vice squad will be kept at work Inspector Rowe said he did not know. It may be only another week, it may be all winter, he said. He said, however, that the work has been accomplished much more thoroughly than it ever has been before.

There are about fifty of these so-called grill rooms, Lieut. Martinec said, that are little more than saloons with a back room furnished with drinking tables where women who have been the object of the special "clean-up" have *plied their trade*. As the result of police activity, patronage at these places has fallen to next to nothing, investigation has shown.

Conditions in this section were at their worst when the Baptist vice commission made its report a year ago. At the time, the report said an investigation by women detectives of 1200 working-girls, receiving small wages, disclosed that "out of the total number of cases gone into it was found that about 200 girls were living in rented rooms in the downtown section, and soliciting in downtown grill rooms, on the streets, and in the dance halls."

One case, worse than the others, was that of a girl 14 years of age, brought in with a man much

her senior. The girl was turned over to juvenile court. The man was sent to the workhouse.

The above long editorial, of which I have taken only a few fragments, was written or dictated with the idea that it was encouraging news. Well, in some respects it is encouraging. I am glad, and, in fact, I rejoice to know that the officers of the law have done *something*; but, oh dear me! what an *admission* it is in regard to the iniquity going on in great cities! The italics in the above are my own. Notice first there were 500 "undesirables" all together; and then look at that comment—"mostly women."

The whole State of Ohio has just been discussing how much better morals we should have if women were allowed to vote; and the whole wide world, or at least a part of it, is in the habit of looking up to the women as the saints or as "guardian angels" compared with the rest of mankind; and this is right and proper and true. That expression, "grill room," has always jarred on my sensibilities; and may be I am stupid, or behind the times, when I confess that I had until now only a dim idea of what a grill room is. The above extract gives the definition. It is a saloon open at night, and especially nights and Sundays as well, with a back room where lewd women "ply their trade." The city acknowledges there were about *fifty* such places in Cleveland.

By the way, let us pause a little right here. When that Baptist commission a year ago demanded that the saloons should close nights and Sundays according to law, the chief of police of the city replied sneeringly that "there would not be prisons enough in the whole city to hold the culprits." That was given as a reason for not enforcing the law. By the way, Mr. Rockefeller donated a very large sum of money to eradicate the hook-worm in the South. This was a praiseworthy object; but what is *hook-worm* compared with the grill rooms of our cities—rooms where they entice (and perhaps purchase for money) girls fourteen years of age or less? And this is going on right here in this land of the free and the home of the brave—right in our own fair State of Ohio—the State that we have proudly boasted was centrally, geographically, and in other ways, in the front rank in regard to morals. May God help us. We can fight smallpox, yellow fever, diphtheria, and all such things, without let or hindrance; but when it comes to petitioning our

government, not only to give time and money, but to stop and even *consider* the death and ruin that come from the saloons or the beer traffic, Uncle Sam puts his hands in his pockets and stands mum. Taft, Roosevelt, Wilson, none of them dare make mention nor even *whisper* in regard to the rum traffic. The cigarette business is following in close wake, because there is *money* in it—yes, paltry dirty nickels—mainly nickels—in the business of selling cigarettes to children or giving them to children, to create an appetite. Our great Uncle Sam stands with his arms folded or looks the other way. Of course there is *some* legislation against cigarettes.

This same *Plain Dealer* has made mention many times of the three-cent dance halls, and has spoken encouragingly of having more such dance halls established, even under the auspices of the city itself; but the clipping says that heretofore, if not just now, these lost girls were using the dance halls as a place for "soliciting." Have they never read that closing verse of the seventh chapter of Proverbs, "Her house is the way to hell, going down to the chambers of death"?

You will notice in the above the expression "golden ruled" is used several times. Do you know what "golden ruling" means? I will tell you. It means letting criminals go scot free after they give some sort of feeble promise to "be good." Some time ago the Anti-saloon League, after the expenditure of considerable time and money, caught three men red-handed selling liquor in dry territory. They were both proved guilty, fined, and sentenced to imprisonment. While they were in prison a golden-rule officer reviewed the case and turned them loose to go back to their regular business. The only excuse he gave was that the punishment was "excessive." I suppose golden ruling means as a rule to say to a criminal, after he is caught, something like this:

"My friend, the golden rule admonishes us to do unto others as we would have others do unto us. Therefore I set you free."

What sort of philosophy is that? And it is, without question, the sort of philosophy that accounts for the terrible *increase* in crime and wickedness throughout our land. I said in starting out that we might rejoice that *something* had been done; but Superintendent Rutledge, of the Anti-saloon League in Cleveland, tells us the above reports are very much exaggerated, although he rejoices, as I said, that something has been done. He further reports to the *Cleveland Press* the fact that mem-

bers of the Chamber of Commerce own property in the tenderloin districts is one great reason why this hellish traffic has been allowed to go on unrebuked and unpunished.

Let us now consider another phase of this "clean-up." These vile people, men and women, have only been sent "out of town." They have not been punished by fine or imprisonment. They are simply admonished to go somewhere *else* to ply their trade. To make sure they really *did* go somewhere else, these brave policemen saw them on the train and witnessed that they bought railroad tickets. Now, seriously, how much better off is humanity in general, take it the world over, when criminals are made to go somewhere else? When so many of our Southern States went dry the liquor-dealers all piled into Jacksonville, Florida; and if you will read a Jacksonville paper (advertisements especially) you will know something about the results. Our Prohibition friends have objected to our local-option work because we many times, at least, have succeeded only in making the rumseller move over into another county. Several times it has transpired that he was simply obliged to rent a room on the other side of the street, and go on as before. The above is certainly a bad feature of local option. But the Anti-saloon League usually gets right over into the neighboring county, so to speak, if it happens to be wet, and proceeds to make that county dry also. Now, if this crusade against vice, which I believe was originated by the Baptist Brotherhood, proposes to wage war, not only in Cleveland but in every other large city, that is all right. May God help us in our efforts to wind up the saloon and the grill room, and put a stop to that awful traffic whose "house is the way to hell, going down to the chambers of death."

THE PRESIDENTIAL BEE.

When the presidential bee
Goes a wand'r'in' far and free,
A-seekin' various persons for their gore,
He's the bug of all to fear,
For if once he gets yer ear
You never ain't no good for nothing more.
We've the skeeter boiled in oil,
And to swat each fly we toil;
Germs and microbes—sure,
We've got them on the run;
But the presidential pest—
Sits a-hatchin' on its nest—
What an awful brood we'll have
When he gets done!
Each 'lection year he'd hum,
And we thought 'twas goin' some;
But now he never stops a-raisin' Cain;
We'll just force him to vamoose
(For he ain't no sort of use),
Then we'll settle down to bein' safe and sane.
—C. B. W.

High-pressure Gardening

"THE ELLIS POTATO SYSTEM;" SEE SPECIAL NOTICES, OCT. 1.

For the \$3.00 I sent, I received some instructions about growing potatoes. The instructions, however, although they cost more than the \$2.00 potato-book and our own combined, I do not think can be worth any thing near what those two up-to-date books ought to be worth to any potato-grower. As it is getting to be quite the *fashion* to have some "system" for sale, I want to go into this a little more minutely.

You will notice that this system promises to tell you how to grow big crops of potatoes—600 bushels per acre, for instance. Well, I will tell you what I got by way of instruction for raising this big crop. First, it is copied from the book "Garden Yard," by Bolton Hall. In fact, Ellis acknowledges that he copied it. It was poorly copied with a mimeograph, or some machine for taking many copies from a sheet written on a typewriter. A part of it was so badly copied that it was almost illegible. As I have the original book in question I read Ellis' instructions from that instead of his copy of it. Now, Bolton Hall copies his instructions from a little book sent out in 1905 by Finney Sprague, of Chicago. It was Mr. C. E. Ford who raised the great crop of potatoes, and after spending considerable time in trying to understand *how* he did it, I am satisfied that Bolton Hall has made of this thing a blunder. Ellis *copies* this blunder, and it looks to me as if he did not know enough about growing potatoes *himself* to recognize his blunder. He sent me over a hundred questions to answer. Then he sent me his replies to the answers I gave. The supposition or claim is that he answers each customer according to *his* special needs. It does not seem to me that this is true, however, for many of the answers, or nearly all of them, are copied from something written on the typewriter. Like the patent-medicine quacks, instead of answering each applicant's questions *individually* he has a lot of printed sheets sent out, printed on some copying machine.

I am sorry to find so much fault, for friend Ellis' instructions are mostly good and valuable. But every thing he mentions is already found in the nicely printed books on potato culture which I have already mentioned. I explained to him that I spend my winters in Florida, and he tried to give me instructions that are applicable to my Florida home; but you can imagine about what instructions one would give

who had never been in Florida, or at least who had never grown potatoes there. As an illustration: He gives instructions how to handle *bugs* in Florida, when neither a Colorado bug nor a flea-beetle (those two great pests here in the North) has ever been seen in Florida—at least in Southern Florida, where I am located.

Once more, let me say in closing, look out for the man who has a system or secret in regard to agriculture, to be sent for a certain sum of money. If he has a good up-to-date book to sell at a reasonable price, by all means give him encouragement, and increase your knowledge and information at the same time.

BLEACHING CELERY BY MEANS OF STIFF PAPER INSTEAD OF EARTH; RAISING POTATOES

FROM PEELINGS.

I am quite sure that your readers of the North would be benefited by a detailed article regarding the use of paper for bleaching celery—the kind and quality of the paper; proper time to put it on, if it could be described; how it is wrapped and tied; whether it is expensive; whether it can be used to advantage in the North, etc.

Throughout the North, hilling is resorted to in order to bleach celery. This is quite laborious, both to pile the hill and then to level it. In my section we plant the young plants 6 inches apart in the rows, ten in a row, with rows about 8 inches apart. This will cover a space from the first plant in the row to the tenth one of nearly 5 feet; and 1000 plant-hills will make 100 rows 66 feet. It must all be hilled by hand—quite a bit of work when very little results.

When it is considered that the pile of dirt is little or no protection from freezing, and that we must also use a litter covering, I believe that paper might be profitably used, and with the litter would be a better protection than dirt.

Regarding your statement that whole large potatoes are the best seed I quite agree; but when seed is selling in excess of two dollars a bushel the poor man must resort to subterfuge. During the past winter and spring I had the good wife save the peels of those she cooked, cutting a little deeper at the eye. During January and February these peels were planted in the hot frames, and after March in the open ground; and while we may have secured a larger yield had we used large whole potatoes, yet the experiment was quite successful.

Lake Roland, Md., Sept. 29. BENJ. B. JONES.

Friend J., if I am correct, pretty much all the celery produced in Florida is now bleached with a heavy kind of paper that comes in rolls made expressly for that business. I do not know how far it has been used here in the North; but in the South it seems to have taken the place of earthing up entirely. The paper is held in place by means of laths or similar stakes. They are pushed into the ground and held together at the top by means of wire looped around a stake on one side to the stake on the opposite or other side of the row. If it is carefully handled, it may be taken off and laid away and used season after season.

In regard to growing potatoes from

potato peelings, I remember seeing some that were thrown out to the chickens, and which were covered up with dirt where the hens were scratching. Some good strong sprouts started up, and I transplanted them into the garden and had some fine potatoes.

Poultry Department

"NOTHING NEW UNDER THE SUN;" CONVERGENT POULTRY-YARDS, MUSTARD, CHICKENS, ETC.

I thought when friend Stoddard gave us the convergent poultry-yard it was absolutely a new thing, or at least I had never heard of any thing of the sort; therefore I was considerably surprised to find something of the kind already in operation for the dairy business. And now comes the following from away off over the sea from the Isle of Man:

I notice in GLEANINGS, Aug. 15, your remarks about the convergent poultry-runs. According to Lewis Wright, in the poultry-book of 1902, a Mr. Dunbar, of Bedford, Mass., had a plant of your description built and planned by O. H. Payne, C.E., and stated that it had been described and illustrated in the *Reliable Poultry Journal*.

About mustard for poultry, I use a teaspoonful for six birds. I inclose a cutting giving details of an experiment with mustard, and also the reason for its action.

Your special numbers have been first class; but what about goats? I have two nannies—Angelo-Togs, and each goat gives three quarts of very rich milk just after kidding, and keeps in profit from 7 to 8 months. This saves buying milk; and a penny saved is a penny earned.

W. A. TEARE.

Ballashellan, Ballabeg, Isle of Man, Sept. 9.

From the above it seems the idea was in print in 1902, with the suggestion that the same thing has been described and illustrated from our good friends of the old *Reliable Poultry Journal*. Did you ever? But that is not all. It seems also that the recent story about mustard for poultry is only a revival of something published some time ago away off across the waters, and that over in England there is and has been for some time a preparation on the market called "Colman's poultry mustard." Our good friend who writes the above letter submits several pages of what I take to be an advertising sheet for mustard, put out in August of the present year. Full particulars are given in regard to some very careful experiments, and you know our English cousins are always a careful people. The outcome of all this, so at least the advertising circular states, is that mustard not only very largely increases the number of eggs laid, but it also enhances the fertility and the strength and vitality of the chickens after they are hatched. Now can not somebody in the United States advertise and furnish "poultry mustard" at

Where very large potatoes are put on the market, and the potato seed is expensive, your suggestion of taking a very thick slice of paring, and planting the buds or sprouts, would no doubt effect quite a saving in expensive seed.

a considerably less price than the ground mustard of commerce? Our good friend Teare also sends us a leaflet from the "Mark Lane Express Almanac" for 1910, and this leaflet speaks of the advantages of liming the soil when growing clovers, etc.

CAN A MAN KEEP CHICKENS ON $\frac{1}{4}$ CENT PER DAY PER HEAD?

It seems that the statement by Mr. Frederick Martin, p. 772, Dec. 15, 1911, would be more helpful if he would be more explicit as to what he fed those 300 fowls, and prices of food at that time. "Every thing purchased that was fed," and fed them at a rate of 76 cents per head per year! Of course we see it to be less than $\frac{1}{4}$ of a cent a day per fowl. Will some one kindly have Mr. Martin tell us how he did it, or give me some means of finding out how it was done? How many bees and chickens can be profitably kept on one acre of land surrounded by orange-groves and alfalfa, using half of the acre for alfalfa, the other half for yards? I do not care to keep more than 40 stands of bees; but I should like 300, or as many as I could handle, of laying hens on one acre, which is good land, provided with plenty of running water.

Redland, Cal, March 1.

ARTHUR HEAD.

My good friend, you are right in thinking that 76 ets. per head per year is very low; but a good deal depends on the kind of chickens and the price of grain. If you have an acre of ground well stocked with alfalfa, the alfalfa itself will go a great way toward keeping chickens. But generally speaking, I think 300 chickens on an acre is rather heavy stocking. Where alfalfa succeeds, there is probably nothing better than chickens, for it furnishes them both green food and a ration that is almost equal to grain besides. If Frederick Martin sees this he can, perhaps, give us more definite information in regard to the matter.

MUSTARD FOR CHICKENS, ETC.

It is not very often that we find in the Sunday-school lesson suggestions for feeding poultry; but in the "Pilgrim Lesson Leaves," in discussing the lesson for July 21, we find the following:

Dr. William Hanna in *The Designer* has an interesting travel note on this verse [Mark 4:31]. He says:

"Nowhere in the world does the mustard plant attain such size as it does along the shores of the Sea of Galilee, on account of its very rich soil and its abundance of sulphur. One particular clump of mustard plants was as high as our heads as we rode through it on horseback, and it was full of hundreds of twittering and singing goldfinches

which feed upon the seeds. Now, there is nothing irritating in the seed itself, because the activity of powdered mustard is brought out only by the addition of water, and therefore these little birds could feed upon the seeds with impunity. This explains the parable which was uttered on this very shore of the Sea of Galilee."

As you will notice, it is a comment on the 31st verse of the 4th chapter of Mark. Note also the statement that the mustard grows to a mammoth size on account of an "abundance of sulphur." Now, there is so much sulphur in the artesian well water in Florida that it is offensive to most people. Well, I have before remarked in regard to the wonderful growth of various kinds of mustard in Florida. In fact, all the *Brassica* family seem to flourish without any fertilization. No doubt the wild birds feed on the mustard with impunity; and here is a hint explaining the fondness of domestic fowls for mustard in any shape whatever; and I am sure this same mustard is not only conducive to their growth, but it is also conducive to a large yield of eggs. Feed your chickens green mustard, all they will eat; and when you can not get green mustard, give them mustard in their mash, and they will reward you with an abundance of eggs; and not only that, but eggs that are strongly fertile.

A PERAMBULATING POULTRY ESTABLISHMENT.

Our friend Philo has made quite a sensation, not only throughout the poultry world, but throughout the general world, in developing and *demonstrating* the feasibility of growing our own eggs in the back yard. Well, the letter following goes a step further, and suggests that when you want to take a pleasure excursion through the country, or when you wish to migrate from one State to another, you can just load your chickens into the wagon with your household effects, and have fresh eggs right along on your trip, without any profit going to the middleman. Read the following interesting letter and see if I am not right about it:

I brought 20 White Wyandotte hens with me from my old home in Pueblo Co., Colorado. We came by wagon through the Pan Handle of Texas, and were on the way from May 6 to July 2. They were in perfect health all the way, and made a good egg record (we kept strict account), and are still doing all that hens can do. Since we stopped traveling they have wanted to sit, and have hatched 41 chickens, 40 of which are living, and are sturdy and fine-looking. We can raise chickens each month in the year here. Our soil is rich in lime, potash, and magnesia, but it lacks humus and nitrogen. We are thinking of trying sweet clover. People here have never seen it, and do not know what it is. This is a peculiar mountain-plateau or high valley—8000 feet. It seems strange and dreary to us; but we must live here for a while. The climatic conditions and the water from the big government spring are all that was claimed for them. Our minister said last Sunday, "Your country is like

the Holy Land in many respects." Our grain crop here is maize. One little seed will bring several short stalks, each producing a head composed of many grains—often a "hundred fold." Fort Stockton, Texas. MARY M. McALLISTER.

My good friend, I not only rejoice that your biddies kept on laying on that long trip of 57 days, but to know that you are attending *church* in your new home, and that you have found an abiding-place like unto the Promised Land. I should like to know more about that kind of maize that yields, *many times*, a "hundred fold."

THE "POTTER SYSTEM," ETC.

I laughed right out aloud when I read of your opinion of the way Potter does business. I want to say a few words in regard to that system. The system is all right in a good many cases, and no doubt Potter ought to have some credit for having his little dollar book printed; but I don't believe he ought to have the credit for originating the "system" or discovering it. I also bought his book some five or six years ago for \$1.00; and when I received it I read it; and, after finishing it, I sat down and laughed, not because there was anything comical in that booklet, but simply because I was foolish enough to pay \$1.00 for something I had known for years, or long before I had ever seen a poultry paper or a system advertisement, and I have read poultry papers now off and on for some 16 or 17 years. I am 34. When I was seven or eight years old my mother would have us children go into the coop with her and catch the hens for her; she would tell them in the Potter-system fashion, and would tell us which hens would lay and which would not. Then we would pen up the layers and let the others run at large. Especially would she do this mostly in the spring, when the chickens would commence to steal nests under buildings and woods.

I have invested in two such systems, and have heard or known of those same things before, so I have quit that part of the purchasing end of the poultry business, and find I am money ahead by using a little common sense with good wholesome food and less "system," so called.

JULIUS F. RIPCZINSKI.

Minneapolis, Minn., March 12.

CHICKENS—FREEING THEM FROM VERMIN BY GIVING SULPHUR IN THEIR FEED.

Some time ago I expressed some doubt about sulphur having any effect on vermin when fed to chickens. In reply the following comes to us from away off in South Africa:

Mr. A. I. Root once wondered if sulphur in the food of chickens could clear them of vermin. Let him take (eat) daily for a few days a dose of sulphur in any form, and soon he will find his silver money, silver watch, or pencil-case, etc., blackened by the sulphur-gas compound emanating from his sweat.

Potchefstroom, S. Africa, Sept. 15. J. E. DYER.

INDIAN RUNNER AND PEKIN DUCKS.

I have eleven of the Indian Runner ducklings three weeks old. I hope they will lay in winter; but our winter here is so much colder than yours, possibly they will not do so well.

I have two yearling Pekin ducks which have laid to date 222 eggs. The first egg was laid February 23, which I think compares very favorably with the Runners. Last year they averaged 89 eggs each, and I have read in duck literature they are not profitable the second year.

Knowlton, Que., June 27.

S. M. BULLARD.

Temperance

IMBECILES, DEGENERATES, ETC.; SHALL OUR GOVERNMENT CONTINUE TO FOSTER AND ENCOURAGE THIS SORT OF "CROP"?

I have before spoken of the American Medical Society; and I have been assured that it is the best authority in the land in regard to the safeguarding of our people. I have also referred occasionally to Miss Minnie J. Ellet as a woman who has been for some years indefatigable in this matter of rousing our people to the importance of getting legislation for the protection of our boys and girls. Below is something which she furnishes:

STATISTICAL WARNINGS AND ALCOHOLIC DEGENERACY.

Dr. F. A. MacNicholl, vice-president of the American Medical Society, delivered an address before that society at Atlantic City in June, on alcohol and degeneracy. He declared: "Mainly because of the appalling increase in the use of narcotics and alcohol a wave of degeneracy is sweeping the land—a degeneracy so appalling that it staggers the mind and threatens to destroy the republic." * * * He tells how modern scientific methods have reduced the mortality from acute diseases; how the sources and carriers have been discovered and destroyed; but he laments the marked contrast with which the nation deals with alcohol, "that most potent source and carrier of chronic diseases of heart, liver, lungs, and other organs."

He further says:

"A study of the United States census shows that, within a period of fifty-three years, the population of the United States has increased 330 per cent, while the number of insane and feeble-minded has increased 955 per cent."

He says: "Statistics compiled by leading insurance companies of Great Britain show that, in every 1000 deaths, 440 are due to alcohol. This same rate in the United States would mean a mortality from alcohol of 680,000 a year."

"But the great burden of drink is not borne by the drinker, but by the drinker's children. The germ cell that is to be evolved into another being is the most highly organized of all the cells in the body. In its protoplasm lies the material and pattern of the perfected organism. Should such poison as alcohol lessen the nutrition of the cell or impair the quality of the protoplasmic material and deface the pattern, these shortcomings and defects will be manifested in the subsequent stages of development."

He tells of a hospital in New York for the treatment of physical defects, in which every patient was the child of drinking parents. He says further:

"One-third of New York city's schoolchildren are mentally deficient. If this percentage holds good over the entire country, there are seven million children of school age who are mentally deficient, and fewer than 67,000 of these are free from hereditary alcoholic taint. A nation half diseased and half well can not live; but here we have three-fifths of the rising generation mentally and physically diseased."

"Not long ago a call was issued for young physicians to enter the United States army. Eighty per cent of those examined were rejected as physically unfit. When four-fifths of our most representative men are pronounced unfit for war, what shall we say as to their fitness to father the next generation?"

"Boards of health, armed with police power of state, eradicate the carriers of typhoid, and quarantine the victims; but alcohol, a thousand times more destructive to public health, continues to destroy. Alcoholic degeneracy is the most important sanitary question before the country; and yet health authorities do not take action, because alcohol is entrenched in politics. Leaders in politics do not act, because their political destiny lies in

the hands of the agents of the liquor traffic. We are face to face with the greatest crisis in our country's history. The alcohol question must be settled within the next ten years or some more virile race will write the epitaph of this republic."
East Akron, Ohio. MINNIE J. ELLET.

THE LEGALITY OF THE TREATING LAW.

It transpires that my department has a good friend located in the very heart and head of our nation, and here is what he says:

Mr. A. I. Root:—As a reader of GLEANINGS I have noticed with much interest your vigorous wielding of the cudgel on the live moral questions, including that of temperance, and as of possible interest to you I enclose a page which I have torn from a weekly publication of court decisions, containing a discussion of a case that was decided by the Supreme Court of the State of Washington holding a "no-treating" law to be constitutional, and valid.
CHAS. J. WILLIAMSON.

Attorney at Law, Patent Solicitor and Counsel.
Washington, D. C., Aug. 20.

From the clipping he sends, I extract the following:

It is argued that treating is an act of hospitality which has always been exercised by a free people, and is a right of the purchaser of liquor not to be prohibited. The court answers this contention: "In our opinion it is of no weight whatever in support of a practice which becomes recognized as a source of evil and a menace to public morality and good order. Just as the right to engage in the liquor traffic is not an inherent right in any citizen, neither is it an inherent right in any citizen to treat another in a licensed saloon which is under the control of the police power being exercised by a municipality, as in this case. Whatever the right of the citizen may be elsewhere, he has no inherent right even to buy liquor at such a place." The ordinance is upheld.

"RAISING THE REVENUE" BY SELLING GERMS OF "TYPHOID FEVER," ETC.

The writer in the *Rural New-Yorker* says he "has no more use for intoxicating liquor than for typhoid germs." What would he think if some one should ask him to vote for men or parties that propose to legalize the sale of typhoid germs and raise revenue from it? What would you think of such a proposition? Yet such a policy could scarcely do more harm than the legalized and protected sale of alcoholic poison. Now, there is only one party that always and everywhere proposes to put a stop to this "sum of all villainy," so what is the duty of all temperance people? If members of the Prohibition party act in an "uncharitable and unchristian manner," it is unfortunate; but if the above facts are true, does that fact absolve you or any one else from helping the Prohibition party to ultimate victory? Would it not be more practical for the Anti-saloon League to help the party, and thereby "pour coals of fire" on its head?

I notice you speak of pokeweed. We have eaten the young shoots in spring when about six inches high, including the tender stalk, cooked as other greens.

Savannah, Ga., Sept. 21. CHAS. E. A. HALE.

THE EFFECT OF PROHIBITION IN OKLAHOMA.

See the following, which we clip from the *American Issue*:

The New State Brewery in Oklahoma City is owned by the Anheuser-Busch Brewing Company, of St. Louis. Constitutional prohibition closed this brewery, and a few days after statehood 27,000 gallons of beer was run into the sewers from the vats in this brewery.

May God be praised for what Oklahoma has done and is doing.

Gleanings in Bee Culture

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Editorial

THE OHIO STATE BEEKEEPERS' CONVENTION.

THE Ohio State Beekeepers' Association will hold its next annual convention at Columbus, Jan. 14 and 15, 1913, with an evening session on the second day. Secretary Shaw, also State Entomologist and State Foul-brood Inspector, is arranging a program. He advises that the editor of the *American Bee Journal*, Mr. C. P. Dadant, and Secretary Tyrrell, of the National Beekeepers' Association, will be present to give addresses on subjects to be announced later. GLEANINGS will also be represented.

This meeting of beekeepers will precede another meeting—that of the State Board of Agriculture on the 16th—and a number of prominent speakers on agricultural topics will be present on that date. There will doubtless be some who will be interested in staying over and taking in the meeting of the State Board of Agriculture.

Our readers may rest assured that Secretary Shaw will leave no stone unturned to make this an interesting and profitable meeting. Columbus is a great convention city. It is centrally located, and all beekeepers not too far away will find it greatly to their advantage to attend.

GLEANINGS FOR 1913.

WE desire to call attention to the list of special numbers for next year as given on another page of this issue. We have spent much time and thought in going over the letters that we have received in response to our call for expressions from our readers in our September 1st issue; we have not been able to carry out all of the suggestions—that is, we shall not be able to devote a whole number to *all* of the subjects mentioned, but we have selected those that the majority have asked for. There have been a great many excellent hints, all of which we appreciate fully. We hope that we shall not have to turn any one down, for we are going to solicit articles from experts to be used at other times during the year in accordance with wishes ex-

pressed by a number of different readers. One of our readers suggests that entirely too little is known about judging a queen. This is true, and some time we hope to devote a whole number to the question; but as this will be impossible the coming year, we propose to use a number of articles on the subject in several different issues. We suggest that some of our old and reliable queen-breeders — G. M. Doolittle, J. P. Moore, H. G. Quirin, etc., tell us how *they* judge a queen. Let us hear from a good many, for this is a subject to which too little attention has been paid.

Another subject to which we shall give considerable prominence during the year, although we shall not devote any one number to it, is the question of shipping bees in carload lots with and without combs. This discussion has been only begun during 1912, and the prospects are bright for some startling results in the near future.

As intimated, we shall devote more space than usual to the shipping and production of comb honey. With the large number of extensive producers who have gone into extracted-honey production exclusively, something must be done to encourage the production of more comb honey. Prices of comb honey are bound to go up out of proportion to those of extracted. At the present rate, extracted will be a glut on the market in the near future, while comb honey will not be obtainable at any price. Such a condition ought not to be.

We have several interesting experiences of beginners on hand that we shall use January 1, but we need more. We can also use more articles from women for the March 1st issue. We desire expressions from some of our largest producers for our April 1st issue. For example, it may be a matter of surprise to some to know that one beekeeper has such an extensive system of out-apiaries that he recently ordered a dozen four-frame extractors, all of which are for his own *personal* use. We hope to hear from him for this special number.

As mentioned in our editorial in the October 1st issue, we solicit answers to the following questions: Do you use an auto-truck for your out-apiaries? If so, what is the saving over horses? Do you have one central extracting plant, and haul the combs to it? Do you have a separate plant at each yard? Do you have a portable extracting plant that may be moved from one apiary to another?

We want the very best that the country affords for our special number on swarming, May 1, and we are willing to pay good prices for it. If you have a good plan that you have tried thoroughly, let us hear from you on such subjects as the control of swarming, artificial swarming, and other methods of making increase.

We have some good material on new and up-to-date methods of selling honey, but we want more. Do not be afraid to tell the other fellow. We will make it worth your while.

For the August 1st issue we desire professional men who have found beekeeping a rest from worry and hard work to tell us of their experiences. If you think beekeeping is ahead of any other pursuit for this purpose, tell why you think so.

We especially solicit good clear photographs that tell a story; for, just as a child's picture-book is a never ending delight to his heart, so the illustrations in our modern magazines serve to break up the solid printed page; and what might be dry and uninteresting is rendered attractive and full of interest. There are other pictures that tell a story in themselves. They are the best of all, because they save the readers time in getting the idea.

SHIPPING BEES IN THREE AND FIVE POUND PACKAGES WITHOUT COMBS LONG DISTANCES.

SEVERAL times in these columns we have mentioned that we are conducting experiments in shipping bees in wire-cloth cages long distances without combs. For a number of years back we have made a success of sending combless bees in pound and half-pound packages all over the United States. During the fall we have shipped bees in three and five pound packages to a number of prominent beekeepers. These were made up precisely the same as the smaller ones, except they were on a larger scale. In lieu of combs, they contained a series of slats standing centrally through the cage. These slats we believe are important, as they provide a means of foothold and of support. Years ago, in our earlier attempts, we found that bees without combs would not

travel as well as those with. We finally came to the conclusion that it was a lack of proper support, and probably a lack of water. Our modern cages are, therefore, supplied with artificial supports—slats—and, during extremely warm weather, a bottle of water. The difficulty of supplying water *en route* has been met by the use of a small tin can with a self-sealing top. This is filled with water, and properly secured in the cage. In the bottom of the tin is punched a hole about the size of a pin. This hole, while very minute, gives the bees a chance to take a drink *en route*. Large holes would not be permissible, as they would allow the escape of too much water, incurring the risk of wetting down the candy and daubing the bees. While we have not as yet perfected this scheme for watering, we feel that, with a little more experimenting, we shall solve the problem to our satisfaction.

As before explained, we have sent, in an experimental way, bees all over the United States, in three and five pound packages. To give the reader something of an idea of the success we have so far achieved, we are presenting here letters from beekeepers to whom we have sent bees across the continent. These will speak for themselves:

A THREE-POUND PACKAGE OF COMBLESS BEES TO THE EDITOR OF THE AMERICAN BEE JOURNAL.

Mr. Root:—Your letter of the 11th and the cage of bees were both received on the 13th, the letter preceding the bees by only a few hours. As it was rather late in the day, they were not hived until the next day, when they were put into a queenless hive. They were in first-class condition, not more than a dozen being dead. It is certainly a success. However, we must say that the weather was not hot when they arrived. It had cooled off about two days earlier here, so that they must have met fairly cool weather most of the way.

We noticed a queen-cage in the box, so we thought you perhaps introduced the queen at the time of shipment. Would you kindly tell me about this, and how you succeed in such introductions? Or was the queen caged temporarily just for safety? Hamilton, Ill., Sept. 16. C. P. DADANT.

In relation to the matter of the introducing-cage which you found, we find it a little safer to introduce these queens in an ordinary nursery cage. The bees are shaken in the box from one or more hives, and then the queen is caged in the form you saw; and in about four or five hours the bees will eat out the candy and release the queen. While 90 per cent of the queens will be accepted when we drop them down into the cage in with the bees, we find we lose too many to warrant continuing that way; but when we cage the queen just before sending the bees out they go through in good order every time, so that the caging is really a precaution.

A THREE-POUND PACKAGE OF BEES TO THE SECRETARY OF THE NATIONAL BEEKEEPERS' ASSOCIATION.

The bees arrived Saturday afternoon in good condition. I did not liberate them until Sunday morning, and I could not see that any had died, other than would have been the case had they been in the hive all the time. The water-can looks to me like a valuable addition to the shipping-cage, and I can not see why bees would not go a long way in that case.

The candy which you had at the opposite end was practically all gone. Of course I don't know how much there was when they started, but it was practically all used up when I liberated the bees.

I am pleased to join in with you in any experiment of shipping bees without combs, and of getting them in the South to ship north for the honey-flow. If the bees can be purchased cheap enough in the South I can't see why the plan isn't practical.

I thank you for the bees. I have them right out in my back lot among the black raspberries.

Detroit, Sept. 9. E. B. TYRRELL.

Mr. Tyrrell has since informed us that the bees are doing nicely.

A THREE-POUND PACKAGE OF BEES TO DR. E. F. PHILLIPS, OF THE BUREAU OF ENTOMOLOGY.

Dear Mr. Root:—I have your letter of the 12th inst., and am glad to inform you that the three-pound package of Italian bees which you shipped on the 10th arrived in excellent condition with not a single dead bee in it. It was very hot here the day of its arrival. I was in Philadelphia at the time, but Dr. McCray took care of them, and put them in a hive with drawn combs at the apiary. When the bees were run in the hive Dr. McCray noticed a small queen.

Dr. McCray reports that the water-bottle in the shipment was practically full when it was received here, so that evidently the bees had not drawn on it very much.

E. F. PHILLIPS, Expert in Charge.
Washington, D. C., Sept. 16.

A FIVE-POUND PACKAGE OF COMBLESS BEES SENT IN HOT WEATHER TO DR. C. C. MILLER WITH A LOSS OF ONLY 11 BEES.

This morning the telephone said, "Bunch of bees at express office for you." Your letter and the card announcing shipment came an hour or two later. The bees appeared in good condition. I prepared a hive for them with empty combs except one comb of solid sealed honey, all but about 25 square inches of brood. I had no idea where the bottle was, and couldn't guess why there was tin on top.

Wouldn't it be a good idea to have the bottle painted and sanded, so as to give the bees a foothold?

Number of dead bees, 11.

Weight of bees, 4 lbs. minus weight of water that escaped after I opened the cage.

You say the weather was hot for ½-pound package. Not only that, humidity was great. Hard to say whether bottle helped. It seems, however, the water must be a help.

The more I think about it, the more I think the tin should be roughened. That smooth tin overhead doesn't seem the thing to hang from.

I didn't tear it open to see, but so far as I can see no candy is left in the cage.

Marengo, Ill., Sept. 13. C. C. MILLER.

We expect in the future to cover the tin bottles with rough paper or thin veneer wood to give the bees a foothold, and insulate them from the cold tin. Bees ought not to have "cold feet" any more than their owners.

A THREE-POUND PACKAGE OF BEES FROM MEDINA TO FLORIDA.

The package of bees arrived on the morning of the 17th, and they were released late in the afternoon of the same day. They were in fine condition—very few bees dead. The water-bottle was lowered about one inch; the food was entirely gone; the weather was very warm—mercury up to 95. It seems to me it would be better to ship in larger packages during extremely hot weather. I see no reason why this package is not entirely a success.

A. B. MARCHANT.

Appalachicola, Fla., Sept. 18.

A THREE-POUND PACKAGE OF COMBLESS BEES FROM MEDINA TO WASHINGTON STATE.

The three-pound package of bees with queen arrived to-day, for which accept my most sincere appreciation. It is really more than I expected. The bees arrived here at 11 A. M. Oct. 5. I took them in hand at once, as they were in a very feeble condition. There were none that could fly. Very few had strength enough to climb on to the combs, so I placed the combs on the flat and spread the bees on them, and in the course of half an hour they were as good as any bees. There was only about 4 ounces of dead bees. The water-can was as dry as a bone. The candy was about four-fifths gone, providing that small space on the end was full when you started the bees. It was here where a large number of the dead bees were, it would seem, for when the bees got dry they all crowded toward the candy. The space was just packed with dead bees; in fact, it was a hard mass of bees, so they could not get at the remainder of the candy. I believe that in four to six hours longer there would not have been a live bee in the box. I don't know what kind of weather they passed through; but here in Spokane it is fine. They were 24 hours longer on the road than they should have been, provided you shipped them Sept. 30, 8 P. M. At that rate they were nearly five days coming.

Spokane, Wash. LEONARD FUNK.

It will be noticed in the case of the bees shipped to the State of Washington that in a few hours more they would have starved to death, as insufficient provision had been made to give the bees food and water. The very fact that the bees were as good as ever after they had been fed shows that more food and water will put them through in good shape even for long distances.

To demonstrate further the feasibility of shipping without combs, we are now proposing to send Mr. Morley Pettit, Provincial Apiarist, Guelph, Ontario, a three-pound package of bees in cold weather. Indeed, we may say that we have recently had a small package that we have kept several days, putting them outdoors in a freezing temperature. After they had been out a few hours we brought them back into a warm room. This procedure of warm and cold was continued for three days. At the end of that time, not a bee died, notwithstanding they were without even the protection of an inclosure other than the wire cloth. We will let our readers know the results.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A. I. ROOT, "Our Homes," p. 707, recalls this gem, whose authorship I do not know:

The sandal-tree perfumes, when riven,
The ax which laid it low;
Let man, who hopes to be forgiven,
Forgive and bless his foe.

"THE VALUE of honey is attested by its introduction into the German army. Each soldier carries his tube of honey in his knapsack, as experience proves that the use of honey increases strength and endurance on the march."—*Deutsche Imker*, 249. If it's good for the strength of soldiers, why isn't it good for the strength of others?

E. D. TOWNSEND says, p. 725, that two combs with oldest brood are examined; and if no foul brood is found in them the colony is considered healthy. That's for American; it wouldn't do at all for European. European would have to be pretty bad if you couldn't find two healthy combs in every diseased colony. At least that is the case "in this locality."

REIDENBACH, in *Pfaelzer Bztg.*, thinks acid unnecessary in sugar syrup for winter food if water free from lime is used. It should not be heated more than 175 Fahrenheit. Through oxidation formic acid will be formed, and the sugar at least partly inverted. [We have never used acid in making syrup, and seldom if ever experienced any trouble with syrup going back to sugar. The ordinary 2-to-1 syrup (two of sugar and one of water) will be thin enough so it will require some ripening on the part of the bees—that is to say, such a syrup will be partially inverted after it is sealed. If so, there will be no trouble about its sugaring. A mixture of 2½ sugar to one of water possibly would have to have a little acid to prevent crystallization.—ED.]

ON BEHALF of hundreds of beekeepers I want to make a plea that, when supply-dealers make a shipment of a number of packages, each package shall have plainly marked upon it its contents. That would often save a lot of trouble in opening a number of packages before coming to the right one. Another thing, if you don't want to make your customers swearing mad, don't send glass for shipping cases too thick to go in the grooves. That's an outrage that no beekeeper should be asked to endure, and I don't think I ever received glass with shipping cases in which an exasperatingly large number of pieces were not too thick. [We suspect a part of this trouble is due to the fact that some of the manufacturers, in order to get out a case

that would compete with the poorly made cases put out at planing-mills, have made their material too light. If the strips that hold the glass are thin, it is not possible to use a wide groove. The ordinary shipping-case glass is made of scrap glass, much of which is thick, and has to be sorted out before it is put into cases. Supply manufacturers will please take notice.—ED.]

"DR. MILLER says in GLEANINGS that the smoke of cotton rags irritates bees and makes them sting."—*Apiculteur*, 316. Must be some mistake about that. I've used piles of cotton rags without finding that objection, and never heard it made by others. [*L'Apiculteur* is quoting the wrong Miller. It was Mr. A. C. Miller, of Providence, R. I., who said that cotton rags irritate bees. See GLEANINGS, page 664, Nov. 1, 1911, and page 702, Feb. 1, 1912. Our experience has been the same as that of Dr. Miller—or rather, we should say, we have used greasy waste made of cotton, and we have never discovered that it made the bees cross. Indeed, it seems to have more of a quieting effect on the bees than any thing else we have ever used. We have used it exclusively in our apiaries for the last five or six years.—ED.]

A CORRESPONDENT of *Deutsche Bzcht.* says he fed daily ½ pound sugar syrup for 14 days, beginning August 15, and it failed to stimulate to laying the young queens of this year's rearing. He is told that he should have fed honey, for sugar alone is good to keep up heat in winter, but will not do for brood-rearing either fall or spring. [It would be our opinion that there was some functional trouble with the queen. Queens that will not lay under such stimulative feeding should be replaced. We have no difficulty in getting a queen to lay in the fall by stimulative feeding. Very often we find some colonies a little weak about the last of August or the first of September, and then we begin feeding to start brood-rearing. By Oct. 15 we have quite a force of young bees, and a hive full of sealed stores. Such a colony is in prime condition for winter.]

We do not believe that the addition of honey would have very much effect. It is quite possible, in the case under consideration, that no natural pollen was available when the bees were fed, and none in the hive. If this were the case, no amount of stimulative feeding would start brood-rearing. The queen might lay eggs, but that would be as far as it would go.—ED.]

G. M. DOOLITTLE, you say, p. 653, bees will winter in almost any cellar with a proper even temperature. I'm coming to think they'll stand almost any change of temperature with proper air. [We are not so sure of the first proposition; but we are more sure that the bees will stand a considerable range of temperature provided they can have plenty of fresh air. Too much light, however, and a temperature above 60 might cause large losses of dead bees in spite of an abundance of fresh air. It is not wise to strain these propositions too far. On the other hand, Mr. Doolittle's statement is reasonably correct; but in nearly all cases it is almost an impossibility to maintain a uniform temperature of 45 degrees Fahrenheit throughout the winter. At 45 the bees will go into a state of hibernation where the respiration is low and the consumption of stores is light.—ED.]

HENRY REDDERT, you are quite right, as Editor Root says, p. 699, "in believing that the color should be a minor consideration compared to the taste" of honey. Pardon me if I say I think it is, and that you are mistaken in thinking "Beekeepers have spoiled their own game by advocating color for quality." Before there was a bee journal in which there could be such advocacy, there was the same preference by the majority for clover that there is now, and the same preference by a minority for buckwheat. I agree with the majority in preferring honey of lighter color, not because of its color, but because of its flavor, and you may advocate till you're black in the face without making me think I like buckwheat as well as clover. It's all a matter of taste, friend Reddert; and when the majority prefer the taste of the darker honey, the darker honey will bring the better price, and not till then. Neither do I believe, Mr. Editor, that it depends very largely upon what the customer is used to. I know those who greatly prefer buckwheat to clover, and yet they have seldom tasted buckwheat.

ARE YOU NOT just a bit daffy on the safety business, Mr. Editor? Regular shipping cases were considered safe with carriers. Then came safety-cases, which the catalog says "do not require carriers." Then when I raise the question, p. 683, whether safeties without carriers are as safe as regulars with carriers, you say, "We would recommend both safety cases and carriers combined." And then a dim fear is raised that you may have something more up your sleeve when you say, "We believe it is very wise to give comb honey all the protection it can reasonably have." [In the last few

months we have revised our opinion. We have personally seen large shipments of comb honey all smashed down for want of a little care in packing. In some cases it is a lack of safety cases, and in others it is a lack of carriers. Why, then, have we revised our opinion? Because we are convinced that comb honey, even in safety cases, can not be thrown down, piled up upside down, or on end without breaking. The carrier is relatively so much heavier that freight and express handlers can not throw it. It can not stand up on end, and it is too heavy to end up; and it can not be placed upside down. Large quantities of comb honey are broken down in common shipping cases when placed in carriers, showing clearly that the carrier *alone* is sometimes not a sufficient safeguard against breakage. We now believe, therefore, that not only carriers but safety cases should be used.—ED.]

I MENTIONED your preaching "more extracted," Mr. Editor, p. 683, and you ask where. On p. 542, 1910, you say, "There is plenty of evidence to show a tendency on the part of comb-honey producers to go into the business of raising extracted," and conclude by saying, "It is not at all surprising that there should be a marked tendency toward the relatively cheaper article that apparently yields a larger return for the investment." [The quotation referred to on page 542 simply states a condition without any recommendation—at least was so intended. In all the subsequent preaching, recommending the production of *comb* honey, the condition referred to in the quotation relative to extracted was recognized. In our footnote on page 683 we made this statement: "Where did we continue to preach more extracted, as we are now advocating more comb-honey production?" Notice that we use the word *continue*. You have not yet furnished us the quotation called for. We may say, in further explanation of our policy for advocating the production of comb honey, that at the present rate of decrease in the production of comb honey the time will soon come (unless we can turn the tide) when there will be but very little comb honey produced. As we tried to point out, the trouble is not because comb honey is not in demand, but because of the poor and slovenly way in which beekeepers have been grading it and shipping it to market—so much so that the dealer has in many cases refused to handle it. But the public wants it; and at the present time there is a very strong demand for comb honey with but very little in sight, with a large supply of extracted.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Monday, Nov. 11, a beautiful day, typical of the best weather we often get in this latitude during the period commonly called "Indian summer." Bees are flying freely, and some pollen is coming in from scattered dandelion and marshmallow blossoms. A good flight at this time means that bees in Ontario that are wintered inside will go into winter quarters in good shape, as many will carry the bees in just as soon as the weather turns colder again.

* * *

Colonies in Ontario are going into winter this year *very* populous in *young* bees, as brood-rearing was kept up very late in the season, unlike conditions of last autumn. Although so many old bees were in the hives last fall, yet we had splendid wintering; as a rule, we do not feel like making any calculations as to this year with changed conditions, although an orthodox view would be that many young bees make good wintering. With such a large population in the hives at present, the main danger will be starvation; and, as hinted at in a previous issue, I anticipate that many bees will starve in some yards this winter where no feeding has been done.

* * *

"He was an honest man and a good citizen," page 679, Nov. 1. I thought when reading the death notice of that pioneer beekeeper, J. S. Harbison, that the quotation given and taken from friend Merriam's postal was about the best that one could wish for in the way of an epitaph. "An honest man." Do we really understand what is implied in the term? For surely if *honest* in the best sense of the term, all the cardinal as well as the minor virtues will be embraced in that phrase. Truly "a good name is rather to be chosen than great riches."

* * *

Regarding the matter of nomenclature in bee terms, please notice that I found no serious fault with the use of the word "hybrid" as beekeepers misuse the term. Rather was I saying that, when we generally accept some words in their wrong application, why worry so much over another one on the list, even if it is in using such butchered English as "shook swarming"? The editor of the *Beekeepers' Gazette*, in a recent issue, shows that he is much opposed to the use of the word hybrid, as commonly used by beekeepers; but then I notice he has an "M. A.," hence

naturally would be more shocked at seeing poor English in print that would be the case with this scribbler with no very accurate understanding of words often used in scientific discussions. In so far as I am concerned, I still think it a great mistake that the term "black brood" was changed into the cumbersome "European foul brood;" and the latter term, according to many good authorities, is fully as misleading as the former one could possibly be. Even if the dead brood in this disease is not quite "black," everybody, nearly, knew what was meant by the term, and that is more than can be said of the name now used, as almost every journal gives evidence of some one using the general term "foul brood" when one has to guess which variety of the disease is meant.

* * *

"The honey-board should always be left on the hive under the lid, whether for wintering or through the season, as few up-to-date beekeepers use cloths any more." So says D. Everett Lyon in the *Farm Journal* for April. All of you back numbers who still use a quilt, please take notice. As the writer is among this number, and intends to *stay* there, nothing personal is intended, you see. Mr. Lyon also says that April is the month to make increase. Even after taking into consideration the fact that he is so much south of us, I am under the impression that the date he gives would be too early. Can any one in his latitude tell us if his advice on the question is sound?

[This question involves the use of sealed covers versus absorbents for winter. Our own opinions in the matter have been modified somewhat during the last two years. For very cold localities, or for very severe winters, we are inclined to believe that the sealed covers will not give as good results as the porous cover with warm packing material through which the moisture can pass out and escape. When the absorbent packing is used, there must always be ventilation over the packing.]

As to April being the best month for making increase, that depends. All such statements should be qualified by the general conditions that may exist. We would say emphatically that, for most localities, April is *not* the month to make increase. The average beginner, if he attempts to divide during April in Mr. Lyon's locality, would, we fear, come to grief; and as he is in about the same latitude as ours we are sure he would.—ED.]

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Editor Root made a slight mistake, Oct. 15, p. 647, in saying that fourteen per cent of the bees were diseased five years ago, and less than two per cent in 1911. This did not refer to Colorado, but to Mesa County.

* * *

The Colorado State Beekeepers' Association will hold its annual convention Dec. 12, 13, at the Auditorium Hotel in Denver, 14th and Stout St. There will be three sessions a day, and live ones too. We should have a larger attendance than for several years. One of the features of the meeting will be the automobile session, when dealers will show the merits of their different makes.

* * *

Robert E. Foster, bee inspector for Montrose Co., and myself, called upon a farmer for the purpose of inspecting his apiary. The time of day was about noon, and the farmer inquired whether we had been to dinner. We replied that we had. He then said, "You better wait a little before opening the hives, for the bees are in to their lunch, and if disturbed they may stick their forks into you."

* * *

THE NEED OF NEW IDEAS IN BEE CULTURE.

Let us soon have work in bee culture at our agricultural colleges and high schools. Twenty or thirty young men could readily find places with beekeepers in Colorado each year if they were grounded in the principles of queen-rearing, making increase, and comb-honey production. Apiary management and system, if taught in a course in agriculture at an agricultural school, would equip a good number of young men to bring money-making ideas to the specialist beekeeper, and help him plan his work in a way that would save many a day's labor.

* * *

H. H. Root tells us, p. 585, Sept. 15, that 2000 patents on hives have been taken out in this country, at an average cost of \$100—that is \$200,000—a large sum, and probably more than 99 per cent is loss. Beekeepers should put it down as a rule that new hives are not worth patenting. The difficulty here is that every one of these hive inventors thinks his invention is an exception to the rule. If one has a new hive or bee appliance in his head he should try it out; and if it proves good he can doubtless get a manufacturer to make them

and give him a percentage or can make and sell them himself. Don't waste money on a patent. If the money lost on worthless patented bee goods were available for commencing co-operative effort the beekeeping world would be far more prosperous. But for the good of co-operation it is best that it should develop slowly.

* * *

THE EFFECT OF WEATHER ON COMB HONEY; HUMIDITY AND GRANULATION.

It has been stated a multitude of times that such and such a locality produces a white, well-ripened quality of comb honey; and it has been the prevailing opinion here in the West that such honey does not readily granulate. There are disturbing factors in these so-called rules. A rainy season during the heavy flow tends to limit the flow, and, in addition, to cause the honey to be stored and sealed before being thoroughly ripened to the thickness that is common with arid State honey. Such honey was gathered this year in parts of the West, and it is white or light amber, but thin in consistency, and will show signs of granulation sooner than would be the case if the season had been drier.

* * *

Geo. J. Kindel, the Denver freight-rate fighter, won out at the primaries for the Democratic nomination for Congress. He is one of the best-posted men on freight and express rates in the United States, and Colorado will be ably represented at Washington with him as our mouthpiece. Those of our members in the Colorado Association will remember what a stirring and vigorous address Mr. Kindel made before our last convention. I can assure western beekeepers that all we need to do is to present the facts of freight and express rates on honey before Mr. Kindel, and he is all action at once. Mr. Kindel states it as a fact that he has never gone before the Inter-State Commerce Commission with a grievance without securing a reduction in rates. That is a good recommendation for him. While Mr. Kindel is running on the Democratic ticket, he has shown his independence by running on the Prohibition ticket when he could not get any of the other parties to place him on their tickets. Mr. Kindel will undoubtedly be elected, as he has been actively engaged in work of a public character for years. It seems the Democratic machine was against him, but he won just the same.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The meeting of the California State Beekeepers' Association will be held in Los Angeles, Dec. 12, 13, 14, probably in the Y. M. C. A. auditorium, as that was the convention place last season. It is hoped that there will be a large attendance from all over the State. There is much work planned that is of vital importance to our industry, and no doubt it will be a busy three days' session. Every one who can possibly do so should be in attendance. If any of your neighbors can go, take them with you. Go; get acquainted, and enjoy a brief respite from your daily toil.

* * *

The morning of Aug. 27 found me making hasty preparations for my anticipated motorcycle trip, which was to be the chief feature of my summer's vacation. Possibly I displayed a bit of nervousness, in part due to my enthusiasm as the time for starting drew near, and perhaps because of the fact that I was not very well acquainted with my mode of conveyance. I had traveled only a few miles at a time on my machine, for it had been in my possession but a short time, and was the only one of its make I had ever mounted; so I felt much the same as would a green hand on a strange horse in not knowing just what it might be expected to do. Bidding my family good-by I mounted, turned my face to the west, and rode down the valley. After passing through several miles of orange-groves I came to a point too low for citrus culture, alfalfa and grain taking their place for several miles, when I found myself nearing the city of Colton, which is the junction point of the A., T. & S. F. Southern Pacific and Salt Lake Railways, and a thriving city of four thousand inhabitants. "A short horse is soon curried," for it took only a few minutes to pass through, during which I turned south toward Riverside, passing through almost a continual succession of orange-groves for six or seven miles. At Eighth Street, in Riverside, I turned east, continuing through the orange-groves for a short distance.

When I reached the foot of Box Spring Grade I confronted an experience such as I had not previously had—that of taking a heavy grade with my machine. I had traveled only a short distance when my heart began to fail me, for it was with difficulty that I could get sufficient power to keep on the move, eventually being forced to pedal vigorously, and even then I seemed to be doomed for a walk up that long grade. I tried about every thing I

knew to increase the power. Finally, becoming desperate, I shoved the idler lever up a few notches. Instantly the machine shot up the grade, but did not continue, for before long I shut off the power and dismounted in order to regain my composure and wonder if it was really true that there was a "fool born every minute."

Mounting again I continued up the grade without difficulty. At the top I looked far away to the north of east into the Moreno Valley, while to the south and east lay the Perris Valley, wonderfully rich, but lacking an abundance of water to make it bloom to its full capacity. I turned toward Perris through a vast grain-growing section. After several miles of travel I was able to see that city in the distance—a small country town of a few hundred inhabitants. From Alesandro to Perris the roads were so perfect that I found myself almost in Perris before inquiring for the home of Mr. Warr, for whose place I was headed. I was informed that I had traveled more than a mile too far. I retraced the distance, and was soon greeted by Harry J., who is partner with his father, owners of 1000 colonies of bees in Riverside County. We were almost immediately called to dinner, after which the bee business was discussed pro and con, with the elder Mr. Warr participating. Father Warr had some very interesting experiences to relate about those golden days of old in the early 80's; but as I have no desire to have my friend subject to criticism, such as has been "handed" me, I will not relate his big-yield stories of 1884 and '86. Suffice it to say, these old-timers have seen yields that are almost incredible these days. The elder Mr. Warr says that, when Harry gets discouraged, he relates those big yields "of old" to him to give new courage.

From their home can be seen a great alfalfa-growing valley, which is of little value to the beekeeper because of being cut almost entirely for hay, and not allowed to bloom sufficiently to produce honey.

After a few hours' visit, Harry and I mounted our machines, and rode several miles over the hills to apiary No. 1. Typical of other ranges in this section, I found very little button sage, the main source of honey being white sage and wild buckwheat. Button sage was much more plentiful a few years ago, but has been largely destroyed by brush fires. Here I will mention the fact that button sage is destroyed root and branch by fire, but the white variety is injured for only one or perhaps two seasons.

Conversations with Doolittle

At Borodino, New York.

FINDING BLACK QUEENS DURING A TIME WHEN ROBBERS ARE BAD.

On p. 454, August 1, 1911, I told how to find a black or hybrid queen in the middle of a bright sunshiny day, when the larger part of the bees were out of the hive, by sitting with one's back to the sun, so that the bright sunlight would make it easy to see the queen as the combs were carefully raised from the hive and set in an empty hive close by. I also emphasized the using of caution so that the bees would not be stampeded, which is generally the main trouble in finding a queen, especially a black one. After reading this, Mr. Crane wrote, p. 615, Oct. 15, 1911:

Hello, friend Doolittle! I want to know if you can do that for an hour when no honey is coming in, without music about your ears in the key of seven sharps. Yet we have been finding them this season for many days, sorting out the old or defective ones with great rapidity. We use a queen-sieve, and are not troubled by robbing.

The first thing that took my attention in reading this was that friend Crane would have the readers of GLEANINGS think that he uses only black and hybrid queens. If this is the case I wish to say that he is entirely behind the times, especially in a locality where European foul brood has a foothold. All black and hybrid bees have mostly "gone the way of all the earth" in this locality through this disease, while the Italians seem to be fully capable of conquering it. Bro. C., you had better get on the Italian band wagon with your department in GLEANINGS. I did not write what I did because I kept black or hybrid bees, for I do not. I wrote it for beginners who had started with such bees.

The next thing to take my attention was that the editor of one of the departments in GLEANINGS should put off hunting out his "old or defective" queens until a time of scarcity of nectar had arrived in the fall. That *will* do if one is sick at the time this should be done; but to allow the beginner to believe that a time of scarcity of nectar is the best time to supersede old, poor, failing queens, is something hardly admissible in the columns of a paper like GLEANINGS. Very poor queens should be superseded in the time of fruit bloom, at which time there is very little trouble in finding even a black queen; for at that time of the year, and in the middle of a good day, two-thirds of the bees will be out after nectar. All

not superseded at the time of fruit bloom should be looked after during the closing days of the white-honey harvest, as this is the time nature seems to provide for this work. I have found that success attends almost every effort of the apiarist along this line at this time; hence I have used this time of the year for this work for a quarter of a century.

Now for Bro. Crane's question about working an hour with black bees during a time of scarcity of nectar without robbing going on. This depends largely on who has handled the apiary previously. If carelessly handled so that the bees have been angered, or if a *greater* carelessness has allowed the bees to get a taste of stolen sweets, then robbers and stings are almost sure to result when trying to find queens at such a time. As a matter of precaution, all doors and windows to every building containing honey should be carefully shut and guarded; and no one should allow himself to leave a section or frame of comb standing around for a *single* minute. If an apiarist has exercised the needed care along these lines during the season, there will be no trouble if the work of finding queens has been put off, so that it must be done at times of scarcity, where an *empty hive or a special box is used* to set each frame in as it is taken from the hive. I often work from 10 A. M. to 2 P. M. without robbers or stings at such times. The one thing that should be impressed upon the mind of the beginner in work of all kinds with the bees is, *carefulness* in manipulation. Too many go to work with a colony of bees as if they were to tear a house or barn down. Covers are jerked up and thrown down on the ground, frames are hauled out with a rush, without properly pushing the rest away from them, so that the bees are rolled over and mangled; and when the hive is closed "the bones" creak and break when doing this, without driving the bees away from the joints of the hives. Not long ago I visited an apiary where every joint at the top of the hives and supers was "carpeted" with dead bees which had been previously crushed, and the snapping of "bones" when the covers were put on made me fairly crawl. I protested, but was met with "My time is worth more than a few bees." No, friend Crane, black queens can not be found at any time of the year under these conditions, unless perchance your queen-sieve will do it.

General Correspondence

AMERICAN FOUL BROOD

A Plan for Simplifying the Second Shaking by Giving the Bees Two Drawn Combs in Addition to Full Sheets of Foundation when They are Shaken the First Time

BY E. D. TOWNSEND

Continued from last issue.

In my first article I mentioned treating a colony for a neighbor where some of the combs in most of the hives were built cross-wise of the frame. The diseased colony had four or five combs built straight in the frames so they could be removed. The other side of the hive (that side containing most of the honey left over from the winter) was immovable, except as the combs were cut from the frame. These combs were cut out and taken to the honey-house, and none of it brought back to the hives. A portion containing brood was burned. I suppose all beekeepers who have had foul brood have been through a similar experience and know what a sticky mess we had. It could hardly be called treating of disease; but still, by proper management it was a success. As it was during the honey-flow, and as this beekeeper had not taught his bees to rob, we were not troubled along this line. The four or five straight combs of honey and brood that were left were spaced about two inches from center to center, in the middle of the hive, the cover returned, and left until the next morning. The last morning all the drip from cutting out these combs was cleaned up by the bees and stored in their combs, and the colony was ready for treatment by the McEvoy plan, the first handling being only for the purpose of putting the combs in shape to treat later.

Two weeks after the first shaking, the weak colony containing the two or three stories of diseased brood are ready to be treated, and are handled according to the plan I explained first, using two empty combs, a clean hive, etc.

I mentioned before that a weak colony is not strong enough to take care of more than a small part of the unsealed brood given them. I will now explain this.

We treat our diseased colonies at the opening of the clover flow, as I mentioned before, as clover is about all we can depend on for our surplus honey at this one yard in question, since the basswood has almost entirely disappeared; and as clover never yields more than four weeks, and in some seasons only two or three, it will be seen that, if we were to wait until all the brood

has hatched—that is, three weeks—very likely the season would be over, and there would be no use of treating the colonies, for they would then be of no value. After just two weeks the colony will be a powerful one; and if they can have a honey-flow lasting a week, the bees will fill their hives and be in good shape for winter.

After shaking we carry the old diseased comb to the bee-tight honey-house. There we cut them out of the frame into a metal washtub, because this kind can be washed easily, leaving what clean comb there may be in the frame. If the remaining combs contain honey we extract it, then cut out the rest of the combs and render them into wax, burning the old brood-frames as well as the combs in the tub that contain bad brood. Never extract honey containing diseased brood. Never extract honey from comb containing diseased brood.

Disease will exist in different stages of development in different colonies. Some will have but few diseased cells, while others will have a large amount of their brood dead, and yet be strong in bees. Still others may be found in the last stage of the disease—their combs nearly a solid mass of dead brood with not enough live brood hatching to keep up the number of workers so that the colony has dwindled considerably. If this condition is not taken care of it will soon be a prey to the robbers, and thus the disease will be carried to other colonies.

We have been accustomed to handle diseased colonies in three different ways, according to the stage to which the disease has progressed, as follows:

First, the colony having but a dozen diseased cells is considered quite harmless. The bees are shaken back into their own hives without disinfecting, direct on to foundation. They need no second shaking.

Second, a colony having considerable diseased brood, but not enough to reduce the number of workers appreciably, is treated as I have described above, with the two empty combs, etc. If the amount of diseased brood does not exceed that in one comb the bees are shaken back into their own hive which is not disinfected; but the two combs are shaken the second time, according to the regular plan I have described. If the colony has a large amount of diseased brood the hive should be disinfected, as I will explain later.

Third, a colony that has dwindled down until it is very weak because of disease is of no account, and is not saved. Bees in

the last stage of the disease are the most dangerous of all, and radical treatment is best in the long run. No honey is extracted from the combs in such a colony, all of them being burned except two which are left spaced rather far apart in the center of the hive. Later on, when no bees are flying, we carefully lift out these two combs, bees and all, and burn them. They can both be carried at once, and drop them on a fire. I should be glad to use chloroform in some way, as it seems cruel to burn the bees. This makes a clean job of the whole thing except the disinfecting of the hive.

While it may not be necessary to disinfect hives when treating American foul brood, we do so with all that have contained a great amount of diseased brood, and we also disinfect the hive where the diseased brood is stacked up to hatch. We have an idea that so much of this brood together is dangerous. The trouble and expense are but trifling, and in some cases it may prevent the disease from reappearing. We use a one-to-one-thousand solution of corrosive sublimate or carbolic acid, and simply immerse the hive parts in this solution. Nothing can live through it.*

In producing extracted honey where American foul brood is prevalent there may be no better system to follow than the McEvoy. The hives should be numbered with good plain figures that can be seen clear across the yard. These ought to be made with paint so they will stand the weather from one year to another. Upper stories containing combs that have never been used by the queen should be provided, the theory being that these new combs can be cleaned up dry of honey by the bees, thus removing all spores of American foul brood they may contain. Combs that have been used for brood-rearing contain many cocoons that absorb the honey so that the bees can not get at it, and this honey is just as likely as not to contain spores of the disease. This explains why it is necessary to use combs for the extracting-super that have not been used for brood-rearing.

Having the proper combs, the plan of producing the honey from a diseased yard is much the same as though no disease were present, except that, before beginning to extract, each upper story should be numbered the same as the hive on which it was filled. The reason for this is that it is desirable to return them to the same hive that

they were on before, in order to get them cleaned from what honey is left after the combs are extracted. And the combs themselves must be returned to the same super, or else the system can not be carried out. If these precautions were not taken, and honey were extracted from a super taken from a diseased colony, then put back over a healthy colony, the disease would be carried and thus spread about the apiary. It will be seen that it is necessary to have the combs cleaned up by the same colony that filled them in the first place before they will be safe to use in hives containing healthy colonies. It usually happens that, when these combs are returned to the bees to be cleaned, the bees clean them and store the honey right back in the one they are cleaning, and this is quite undesirable. Mr. A. H. Guernsey, of Ionia, Mich., told us in one of the conventions how to get the combs clean from honey, and I consider it a valuable kink. He waits until cool weather in October, when the brood is nearly if not all hatched out, before putting them on the hives. At this time bees are naturally carrying in winter stores from the outside combs to form their winter nest. Taking advantage of this trait of the bees, he gets his combs cleaned at that time. I consider this a valuable addition to the McEvoy plan of producing extracted honey in a yard containing American foul brood.

As upper stories can not be used year after year on the same hive, their numbers should be made in small figures with a pencil so that another year they may be used over a different hive if necessary. Some producers number the upper stories with cards which may be changed from one super to another as they are required.

CUTTING OUT THE DISEASED PART OF COMBS.

When we first discovered disease in the yard mentioned in my first article, the colonies had been worked for extracted honey without queen-excluders, and many of the combs in the upper stories had been used for brood-rearing during the season. We decided to follow the McEvoy plan for treating the yard. None of the combs that had had brood reared in them could be used again. As it so happened, we were at that time expanding our business to some extent, so some of the old extracting-combs had been taken to a new yard we were then starting. To replace these old combs taken away, new frames filled with new sheets of foundation has been supplied. Many of these had not been used for brood at all, and others had been used more or less according to the position they occupied in the upper story, or to the inclination of the

* It seems to us that scorching the inside of the hive with burning straw or with a gasoline blue-torch is really quicker and more effective. We should have our doubts about such a weak solution destroying the spores of the disease.—Ed.

queen to go above. With a sharp thin knife, when the combs were warm, so they would not be brittle, the portion that had been used by the queen was cut out and rendered into beeswax, as were also the old black combs mentioned before. See illustration, next issue. After being trimmed, the combs in each extracting-super were one-third to one-half cut away. These were probably about as good as full sheets of foundation in these supers, so we saved some expense (and, we think, some time) by this method.

The next season these upper stories containing frames partly filled with comb were given to the bees promiscuously with apparently no bad effects. Of course the bees were not diseased very badly, for we started the treatment in time.

Remus, Mich.

A PUSH-IN-COMB INTRODUCING-CAGE AND SHIPPING-CASE COMBINED

BY A. V. SMALL

The first queen I bought came in a Benton cage, and I tried to introduce her to a full colony according to the directions on the cage. She was rejected; the bees built cells, and reared a queen of their own. This was in June. In August I purchased another, and she too was rejected.

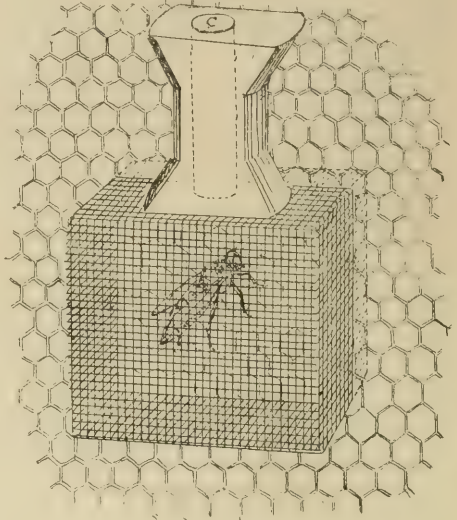
The next year I raised several queens from swarm cells built in one of my good colonies, and had no trouble in introducing them with the push-in-comb cage.

This matter of getting the queen on to the comb while she is being introduced has some important advantages. She more readily and more thoroughly acquires the colony odor; she and her attendants have access to the natural stores, and she prepares to lay and usually deposits a few eggs before she is released. The colony is very exceptional that will kill a queen that is depositing eggs in their own combs.

My push-in-the-comb shipping-cage is an ordinary Benton cage with the wood cut clear though in the two circular compartments occupied by the bees. The back of the cage is provided with a light tin slide. This forms a bottom for the bee compartment during shipment. The front of the cage is covered with a piece of screen wire extending down beyond the sides and end of the block half an inch or more. When this part of the wire is pushed into the comb, the back or bottom of the cage is brought in contact with the comb surface. Then after the tin slide has been carefully withdrawn, the queen finds herself on the

comb surface, but can not escape from the cage until the candy has been eaten away by the bees of the hive in the usual way.

After the tin slide has been withdrawn, a little piece of screen wire is pushed into the comb at the end of the block from which the slide was withdrawn. This prevents the bees from working their way between the cage and comb surface and liberating the queen too soon.



During shipment the part of the screen used to push in the comb is folded down on the back of the cage, and the cage is covered by a light cardboard carton provided with two or three air-holes next to the screen for ventilation.

I am now using a push-in-comb cage with a spool tacked on one side as shown in the illustration. The spool is filled with queen-cage candy, and the bees can liberate the queen by eating out the candy instead of tunneling under. I like this better than any other introducing-cage I have tried.

North Topeka, Kans.

A Suggestion in Regard to the Miller Record System

The new record system, on page 656, Oct. 15, is a good and time-saving method. The author mentions that the apiary has 200 colonies, but provided for only 199. Could he not put ten colonies in his first group by using 0 to 9 inclusive, and make the apiary of 200 colonies complete on 20 cards?

Lititz, Pa.

L. G. SCHULTZ.

[We see no reason why this suggestion should not be practical. The first row would then have ten hives in it, like all of the other rows. The first hive in each row would then be numbered 0, 10, 20, 30, etc.—ED.]



S. D. Smith, of Auroraville, Wis., who, though nearly 80 years old, cares for 105 colonies of bees.

OVER A HUNDRED COLONIES CARED FOR BY A MAN NEARLY 80 YEARS OLD

BY S. D. SMITH

The picture shows my apiary of 105 colonies. Although I am 78 years old I do all the work myself. I have extracted about 2000 pounds of honey, have taken off a good deal of comb honey, and have a whole lot to take off yet.

Late in the season, even in September, the bees began swarming, and they did nothing but swarm every day, rain or shine. Sometimes three or four came out together and formed a big cluster. All my queens are clipped, so they have to go back, each bee to its own hive. I keep all of my colonies very strong.

Auroraville, Wis.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Some Queer Hives and Frames

BY J. E. CRANE

Continued from page 727, Nov. 15th issue.

Nearly all the hives in the town where I began the work of inspection contained Hoffman frames; and the first hive I attempted to open I went at with a rather heavy jack-knife. If I remember rightly, the frames filled the hive from side to side.

"Hold on there! you will break your

knife," said the kind-hearted proprietor. "I have a hive-tool that will help you out."

He brought me a large flat file that was too much worn to be used any longer as a file. I believe the end was somewhat sharpened. With this tool I was able to squeeze the frames together and to loosen one so I could get it out. Then the rest came easier. It took some of the conceit out of me when I found that the proprietor could handle those frames in half the time I could as I had never before tried to remove Hoffman frames from a hive occupied by bees, having always used the Langstroth frame.

The next place I visited I started to use my knife again from sheer force of habit, when I was called on to halt, and the owner of the yard called out, "Sonny, run and get a chisel."

I kept hearing this or something like it until "Sonny, run and get a chisel," became a byword with me.

I found several old flat files in use. One man had one with the handle gone and the handle end bent up in such a way that it fitted the end of the frame and could be used to pry it loose, provided one knew how. The inspector was willing to learn. But the reader will inquire whether there were no follow-boards that could be removed. Yes, I found some, but they were often so glued in that often there was danger of tearing them apart in trying to get them out, and I found it more desirable to crowd the frames together as best I could,



Fig. 1.—One of the out-apiaries of F. A. Ticknor, Austin, Minn., who has been a beekeeper for 55 years.

and to loosen the straightest comb and lift it out.

I soon thought I was going to get along nicely, when I began to find hives where the combs, not content with one frame, would bend off on the one adjoining; and some, perhaps joined three or more frames together. It began to look as though "bee inspection" was not going to prove a snap by any means; but I found that, where I could not get into a frame hive from the top, I could tip it up, break out the bottom-bar of the frame, and take out a brood-comb, and inspect.

The second day I was out I found box hives made of grocery boxes, and frame hives with the covers nailed on top so that

they could not be removed with any tool I had with me. The hives were set in long rows about four inches apart, and in all sorts of ways. On the third day I went home thoroughly tired out and generally disgusted — probably not more so, however, than some of the beekeepers I had met. One of these was quite a character, and afforded me some amusement. I was told before meeting him that he might not let me look

his bees over; but I

found him willing provided it cost him nothing. He stood at a respectful and safe distance to watch the inspector examine his ten colonies—seven in frame hives with honey-boards nailed on securely, two in grocery boxes, and one in a hollow log. By cutting away branches of bushes I was able to get at all of them, and my work was quickly done. I assured my friend that his bees were free from disease, and his aparian prospects for the future were bright. He then proceeded to give me an account of his past successes in beekeeping.

"Three years ago," said he, "I was sitting there on the piazza, and I looks up, and I say a *swarm!* Give me my gun! I *shoots 'em!* They come down and lights



Fig. 2.—An out-apiary located in the midst of 160 acres of white clover, the edge of which may be seen in the foreground.

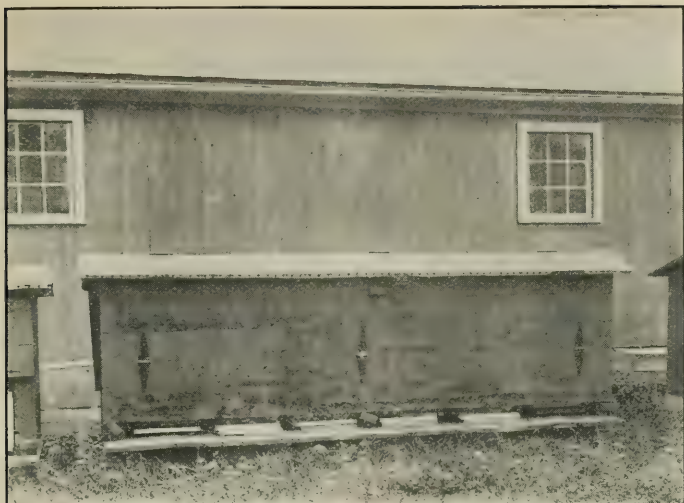


Fig. 1.—P. A. Knoll's winter case for six colonies.

in that tree. I hives them! Three years ago! Ten hives all from one swarm! I no sell very much honey. Honey good on panny cakes. Honey good for colds. Many colds last winter. I come down with one too! Very sick! Most die! I takes a little honey; me better soon. I no sell very much honey. Honey good on panny cakes. Honey good for colds. Three years! ten hives, all from one swarm." I congratulated him on his success, and felt sure he was telling me the truth when he said he sold very little honey, as certainly not more than one of his hives was made so as to take any surplus, and that one very poorly adapted to that purpose.

Speaking of frames, I have found all sorts and kinds — a very much larger proportion of Hoffman than of the Langstroth, however. And then there are styles that I am not wise enough to name. I found one set made two inches wide, top, ends, and bottom-bar, and placed in the brood-box tight together. Evidently, when an attempt to put a colony in such a hive was made, there was no way found for the bees to get inside the frames, so a little wood had been whittled off from the bot-

tom-bars so they could get through.

Another time I found that the proprietor of some twenty old box hives was going to do things right, and was making his own hives, but seemed to have no very clear idea of how things should be. I noticed that his frames were two or two and a half inches wide, and seven-eighths of an inch thick, top, ends, and bottom - bar. These frames were to rest on seven - eighths - inch cleats nailed to the ends of the brood-box.

Another farmer had made his own movable-frame hives, for he said he was a carpenter; but I had to call for a hammer and cold chisel to get into them, although they were of the Langstroth type of frame. It has seemed passing strange that those who have had no experience in beekeeping, or at least in making improved hives, should not first go or send to some factory and get some standard hive for a pattern, and then, if they wish, make their own like it.

I have spoken of the difficulty of getting into hives having Hoffman frames; but this is trifling, compared with what I have experienced in some places where the old style of Langstroth hive and frame was in use, for I could almost always tip up hives



Fig. 3.—The front opened during hot weather.

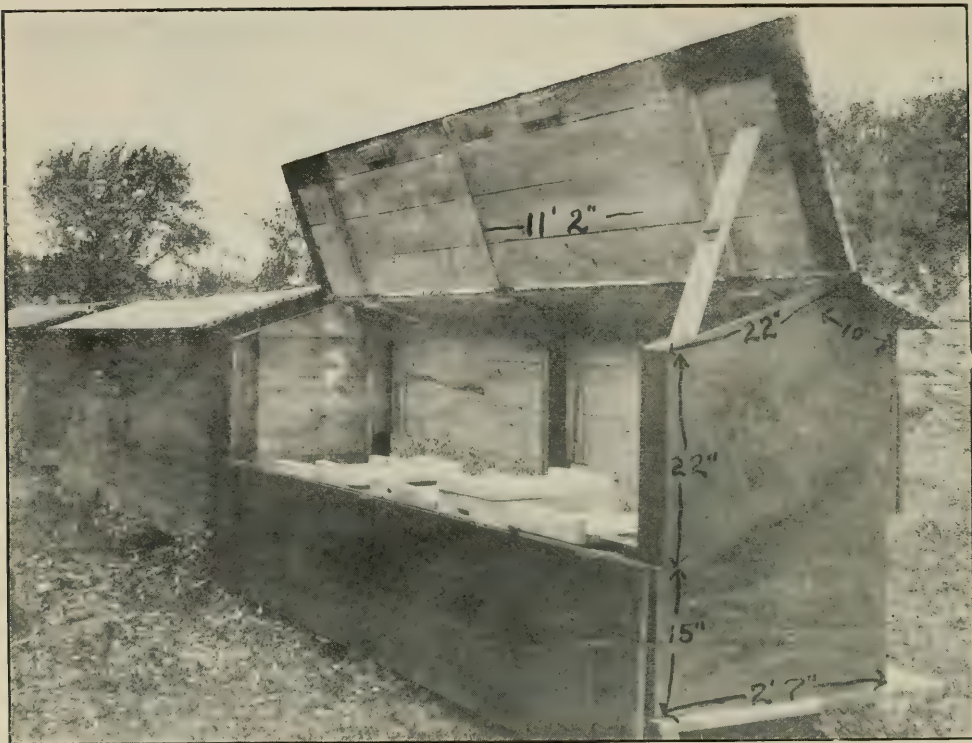


Fig. 2.—The back of the case opened for inspection.

with Hoffman frames and tear off the bottom-bar of the frame and break out a comb. But what can an inspector do with one of those old Langstroth hives when he finds the bottoms nailed fast with ten-penny nails, and the combs built at right angles, and every other one at the top-bar of frames, and he has with him neither cold chisel nor crowbar. There is nothing to do but to look wise and to tell the proprietor that, so far as can be discovered, there is no disease in such hives.

One of the curiosities I discovered on one of my trips was a swarm-catcher which consisted of a one-legged milking-stool with a bail with which to hang it up in nearby bushes, the swarm clustering under the seat and along down the leg. I was assured that it was a great success.

Middlebury, Vt.

To be continued.

160 ACRES OF WHITE CLOVER

BY F. A. TICKNOR

I am sending two views of one of my outyards, located in the midst of 160 acres of white-clover bloom, as may be seen in the foreground of Fig. 2. A yield of less

than 200 lbs. per colony, spring count, at this yard is uncommon. In Fig. 1, notice the rows of sections of glass ends filled with new white-clover comb honey ready for storage, wrapped in newspapers to make them moth-proof till ready for market.

The scenery here is beautiful, and the atmosphere is laden with the fragrance from the clover. The concrete hive-stands are ideal, giving the wingless queens the opportunity to crawl back until their "cases are called." I have had 55 years of bee-keeping.

Austin, Minn.

A WINTER CASE HOLDING SIX COLONIES

BY L. LIST

Because of the heavy losses during the last cold season, the subject of successful wintering has acquired a new interest. There seems to be a trend back to outdoor wintering. When a veteran beekeeper like Mr. Holtermann abandons his well-built cellar and returns to that other mode of keeping his bees through the cold season, it is certainly significant. Because of this renewed interest in outdoor wintering, the

accompanying photographs may prove to be of interest.

Mr. P. A. Knoll, of Frankenmuth, Mich., has designed a hive-stand which, though it contains nothing essentially new, yet seems eminently practical for the purpose. The first illustration shows its appearance in winter, when the space between and above the hives is packed with straw.

Fig. 2 shows the stand open for manipulation. The upper half of the back wall is hinged, also two-thirds of the top. The raised top is held in position by a support, hinged at both ends and also in the center. The roof is covered with asphalt roofing paper.

In the spring the packing is removed and the lower half of the front side turned up, as shown in Fig. 3. In this way the stand furnishes an ideal protection against the scorching rays of the summer sun, making extra shade-boards superfluous. It is, therefore, a winter and summer stand combined.

A recent contributor showed how he gradually moves his hives closer together before packing them in the winter boxes. That is unnecessary with the stand shown here. On the approach of winter, straw is, in a very short time, packed between and on top of the hives, and then they are ready for whatever may come. Any one handy with tools will be able to construct

it, or he may have it built by a carpenter. It certainly will prove to be a good investment. Heavy winter losses may give you a severe setback. Thousands of tons of nectar were not gathered this season because the poorly protected bees had been killed or at least badly weakened by the frost. Surely, the time to prepare for a good honey crop is the year before.

Fig. 4 shows several stands side by side, and also several hives in the open. In some of these the combs melted down in the fierce heat of the sun.

The stands are 11 ft. 2 in. long, and hold 6 to 7 hives of the ten-frame size.

Detroit, Mich., Oct. 1.

A YOUNG ENTHUSIAST IN BEEKEEPING

BY J. F. KIGHT

About 30 years ago I lived in the southern part of this State, and I caught the bee fever from seeing some of A. I. Root's literature. I at once went to work to become a beekeeper, and soon had about 200 colonies. A business proposition called me to the county-seat, so I disposed of my bees; but I have never lost my love for them and their product.

My six-year-old daughter was also inter-

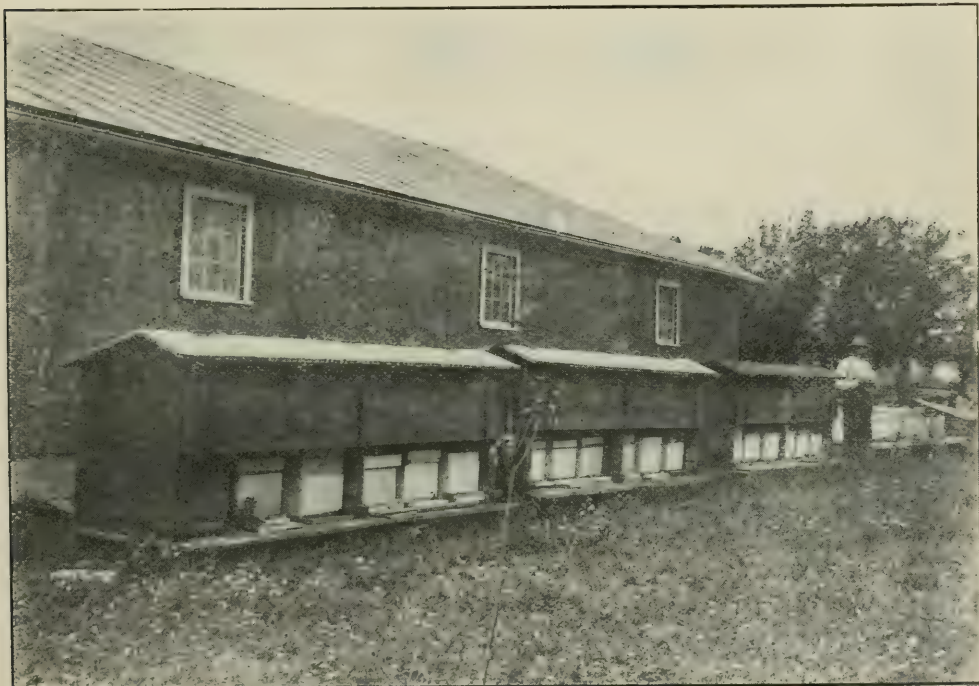


Fig. 4.—The cases in summer furnish adequate protection from the hot sun.



J. F. Kight and his grandson, who is his assistant in the apiary.

ested in my bees, and printed a little letter as follows:

Dear Mr. Root:—My papa has bees that he got from you.

VIOLA KIGHT.

In a few days she received a letter in reply that she has never forgotten. The little grandson in the enclosed picture is a descendant of the writer of the above letter. He is my helper. If I light the smoker and hand it to him he will do the rest.

Southport, Ind., July 23.

SWEET CLOVER, BOTH WHITE AND YELLOW

BY FRANK COVERDALE

I am still testing out both alfalfa and the different varieties of sweet clover side by side. The yellow biennial differs somewhat from *Melilotus alba*—more particularly in that it will not grow a cutting of hay the first year, and ripens too early the second season. Those two points prevent me from growing this species to any great extent on our farms. The white kind makes two long seasons of splendid pasture, and will, during the same period, produce three times as much hay. Alba has this season, under test, made three heavy cuttings of hay, while the yellow gave only one cutting and but little seed. Alba will (and has this year) give one cutting and a heavy crop of seed; and, by the way, we are hulling our seed to-day, Sept. 25; and that which was mown for hay, and cut later for seed, made a splen-

did yield of excellent seed, running out so fast that 125 bushels was run out in three-fourths of the day. Next week we shall make hay from seed of alba that was sown April 5, and pastured to the ground till June 1, then cut back on account of rag-weeds, and it is now ready for over one ton of hay per acre. Yellow will not do this; still, I will make more experiments with this variety. I have not yet tried it out at the last plowing of the corn.

I have a strong hope that this clover will prove to be of vital importance as a plow-under crop in time to put the field to corn. Our tall, slender-growing white kind is far superior as a general farm crop; and it is very important that a right type of it be grown upon the farm. This has been our experience. I had inquiry for upward of 2½ carloads of sweet-clover seed during the past year, and received only two small inquiries for the yellow; so I am compelled to believe that the demand must be limited. Our seed germinates as well as any other clover here; but still I have noticed that seed harvested too green has failed to come up as it should. We have learned to let our seed ripen well before cutting.

I am now writing a series of articles for the *Dakota Farmer*, and hope to put the things of importance before the farming community. I am now making some scientific investigations, and will set forth the proofs. Alba is the greatest storer of nitrogen in the soil of any clover that

grows, as well as the greatest producer of humus of all the clover family. There is certainly a future for this clover.

Delmar, Iowa.

[I confess the above seems rather discouraging in regard to the *yellow* sweet clover; but *this* certainly must be true: Not only are there different varieties of the yellow (annual and biennial) but the yellow of both kinds behaves differently in different localities; and, by the way, I might mention that up to date in our Florida home we have not succeeded in growing any kind of sweet clover, even with heavy applications of lime. Alfalfa grows fairly well with heavy fertilization, but it usually dies out during the summer, in consequence, perhaps, of the excessive (warm) rains.

Now to get back to yellow sweet clover. Years ago, while visiting Prof. A. J. Cook, in Michigan, one of the students called our attention to several stalks in a rank field of white sweet clover, and these stalks were all yellow, and just as rank and luxuriant as the white. Furthermore, I mention, at the end of our sweet-clover book, yellow sweet clover higher than my head, growing profusely along the roadside. Last, but not least, our experiment stations this past season had the rankest growth of sweet clover I ever saw, and with the greatest amount of bloom to the square rod, and this was yellow sweet clover. I am well aware that the annual sometimes, and in some localities, blossoms when only a foot high or even less,

and sometimes does not seem to get much taller. We submit a picture of friend Coverdale's field of sweet clover with cattle grazing on it.—A. I. R.]

FASTENING FOUNDATION WITH MELTED WAX

An Improvement over the Aikin Plan

BY WM. A. SEDDING

I want to tell how I use the R. C. Aikin device for fastening foundation in frames as described in the June 15th issue, 1911, p. 373, with improvements of my own. I nail one inch from the top a strip of board $1\frac{1}{2}$ inches wide and the whole length of the board in place of the handle, as shown at B, and bend the two nails at the bottom, which are pretty stout finishing nails, upward to an angle so as to hold the top-bar of the frame when the board is set on the table or work-bench before me like a music-holder.

Along the lower edge of the board is nailed a piece of tin, bent as shown at A. I made this out of a tin rabbet, and it is for the purpose of making a crimp in the foundation before fastening it with hot wax to the top-bar that has no groove and wedge.

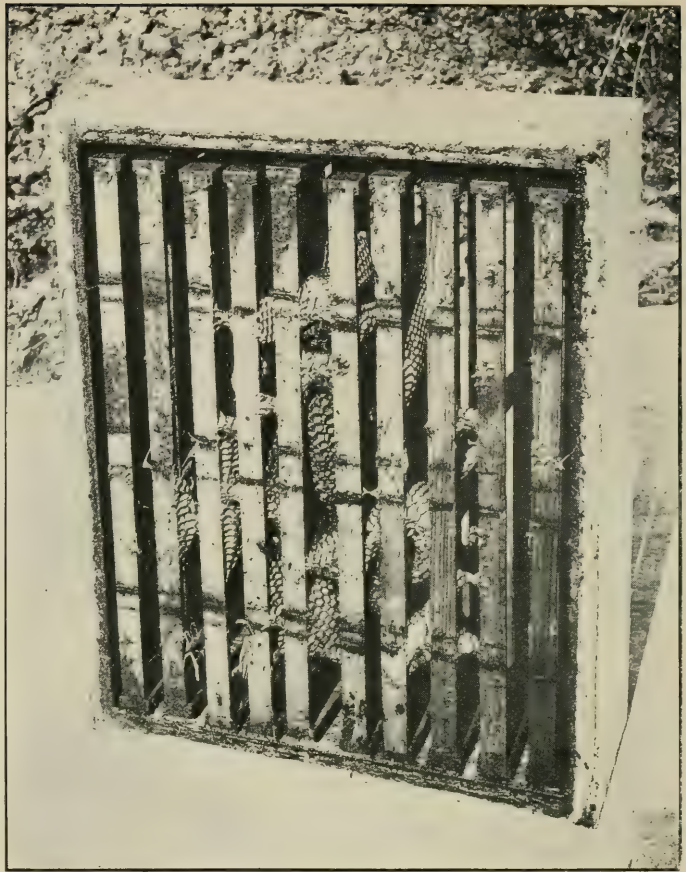
I insert the foundation in the tin groove and flop it over flat on the board. This makes a nice crimp $\frac{1}{8}$ inch wide. Next I lift it up and drop the crimp over the edge of the tin and put my frame on the nails,



Frank Coverdale's field of sweet clover with cattle grazing on it.

pushing the same up close to the foundation, which will fit snugly to the bar, and then run the wheels over the wires. Then I lift the frame off the board with the foundation imbedded, and run hot wax along the back of the crimp. On the other side, along the edge of the crimp, I use a nail which is kept hot on the coal-oil stove where the wax is heated. Not a drop of wax will run under the foundation, and the work is all done in one operation which does not take longer than Mr. Aiken describes.

In order to put foundation in Madary top-bar frames I use it without the crimp, and put the frame with the cut-out side face down, which will let the foundation slide down into the groove before I let the wires take hold of the foundation. Those Californians who use Madary top-bar frames will find this device very convenient because it turns out as nearly perfect work as can be desired. H. E. Thayer, page 254, April 15, says that the foundation drops out of Madary frames. If he tries this plan he will change his mind, and he will see that he can not pull the foundation out,



What happens if no foundation is used. The shallow frames in this super were accidentally overlooked, and put on the hives without even starters. The bees built the comb crosswise and in fantastic curves to suit themselves.

foundation and nailed down. The foundation should be as soft as it can be handled. Monterey, Cal.

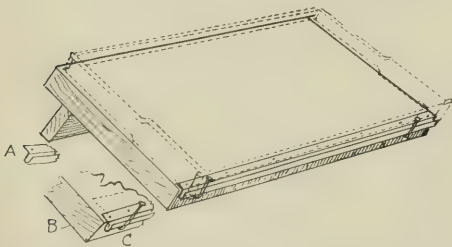
SOFT SUGAR FOR FEEDING DIRECT

BY ARTHUR C. MILLER

IN GLEANINGS for November 1, page 705, in reply to a query by Mr. T. J. Landrum, you do grave injustice, not only to Mr. Landrum, but also to those persons who have urged the use of soft sugar as a bee food. You said:

"It [granulated] has supplanted the 'Coffee A' entirely." Also: "Generally speaking you would be able to use granulated sugar in any place where 'Coffee A' is called for."

This clause is especially misleading. "A" sugar, sometimes called "coffee A," is more properly "Empire A," and is one of the



no matter what the climatic influences are, if he does it right.

The cleat should be nailed in the center first, and then each end jammed against the

fifteen commercial grades of sugar. It is a fine soft sugar with a faint cream tinge; is slightly moist, and holds that moist condition for a long time; but not so with "C" sugar, however, for this latter dries out harsh and mealy, and this is often substituted when the "A" is asked for. The "A" sugar, squeezed up in one's hand, holds its shape, while the "C" crumbles almost as soon as the pressure is removed.

Neither granulated nor "C" sugar will take the place of "A" sugar for the several uses in bee-feeding for which the "A" sugar has been specifically recommended.

The soft "A" sugar, put in a division-board feeder, and hung in beside the brood-nest, will serve to keep up brood-rearing as well as the most painstaking feeding with syrup, and without the danger of any of the food finding its way into the honey later. The bees will lick away at the "A" sugar until it is all gone, while granulated or "C" sugar will be untouched. The soft-sugar-feeding system is the most economical ever devised—not only for stimulative purposes but also for keeping up brood-rearing in special colonies between honey-flows and for queen-mating nuclei. One pound of the "A" sugar will keep one of my little nuclei supplied for the whole season, and there is no need of daily attention as with the syrup, and no danger of robbing, as with the latter, and as with candy made of sugar and honey.

Providence, R. I.

[*Later*.—We wrote to Mr. Miller, saying that the description of his Coffee A did not tally altogether with the Coffee A of early days. He replies.—Ed.]

I am mailing to you a sample of "Empire A" sugar obtained direct from refiners' agent. By him I am informed that this is virtually the same as the true "Coffee A" of our daddies' time. It is sold under several names, or, rather, is used to fill calls for "A," "Coffee A," "Coffee," as well as "Empire A." It costs now at wholesale (25 bbls.) \$4.97 per cwt.

If you will notice the semi-transparent lumps in it you will see how the moisture (syrup) gathers in it. In a large body this settles and leaves the top part drier. This is the only sugar which bees work on readily in its natural condition, *i. e.*, without the addition of honey or water.

Colonies have been wintered on it without anything else, and that was in southern New Hampshire, but I want to know more about its use thus before I advocate it for such purpose. But for economical stimula-

tive feeding and for nuclei, etc., it is unexcelled.

ARTHUR C. MILLER.

Providence, R. I., Nov. 15.

[The sample came duly to hand. The "Coffee A" we used to get in the 70's was whiter, and more like granulated sugar. The new "Coffee A" looks, feels, and tastes like a brown sugar that we get to-day, only it is pale yellow, not brown. We believe it would be an excellent sugar for feeding direct. We shall get some, and try it next season.—Ed.]

FLOWER POLLINATION

Experimental Proof that Bright Colors are an Advantage to Flowers; Red Coloration and Heat; Path-finders; Flower Fungi; Cross-fertilization versus Self-fertilization

BY JOHN H. LOVELL

The writer very highly appreciates Mr. Ryan's expression of interest in the article on flower pollination, page 653, Oct. 15. His kindly criticisms manifest an evident desire to learn the actual facts regarding the mutual relations of insects and flowers. Undoubtedly in the past there have been wide differences of opinion regarding the varied phenomena of flower ecology. A few writers have gone to one extreme or the other; but the truth lies here, as Aristotle long ago pointed out to be the case in most discussions, nearer the "mean" or middle course. Personally I should be glad of an expression of opinion by other readers. The questions involved are of more practical importance than many beekeepers seem to suppose. The honeybee is compelled to share the supply of nectar annually produced by flowers with hundreds of other insects. It is certainly not a good business policy in any industry to ignore the competitors for the raw material.

Gray, in his familiar lines, had reference to human (not insect) eyes. It is doubtful if he knew there was such a thing as flower pollination. No matter how frequently a flower was visited by insects, the poet would have considered its charm as wasted if no human being ever beheld them.

Are the bright hues of flowers of advantage in attracting the attention of insects? Let us put the question to Nature. The way to question Nature is by experiment. I repeatedly counted the number of visits made by honeybees to clusters of pear-blossoms during a given interval of time. In one instance eight visits were observed in fifteen minutes. I now removed all the petals and watched the denuded blossoms for the same length of time. There were

either no visits in some cases, or in others only one or two.

Again, during a certain time the number of visits made by honeybees and bumblebees to the flowers of the garden squash were counted. There were a great many visits. The big cup-shaped corollas were then cut off close to the green calyx. The result was the same as with the pear-blossoms—the naked flowers received few or no visits.

The flowers of the common borage were then observed in the same way, and yielded similar results—the denuded flowers were neglected. In one of the experiments with borage there were scattered on the ground many partially withered corollas, and twice a bee was seen to fly down to them. With a lens I examined three of the defoliated blossoms, and in two of them I found eight or nine small drops of nectar, so that a bee alighting on them would have been richly rewarded for its discernment.

These experiments show conclusively that bright-colored petals are an advantage in attracting the visits of bees. It is clear that they were guided by the presence of the petals; and that, when the corollas were absent, they spent no time in seeking for nectar in the defoliated blossoms, but confined their attention to the flowers possessing petals. Note that they flew to the withered corollas lying on the ground, which, of course, were nectarless. We can discover brilliant flowers more easily than we can green or dull-colored ones. It would be strange indeed if this were not the case with the honeybee; and it would seem as though a grave mistake had been made. *A priori* reasoning may be safely used when it is confirmed by experiment; and here the experiments will convince any fair-minded person that the bees saw and were influenced by the bright corollas.

Mr. Ryan showed keen observation in noticing the red coloring on the outside of the apple-blossom. In New England the whole outside of the young blossom of the wood anemone (*Anemone quinquefolia*), which blooms during the last of April, when winds are chill and snow still lingers in the ravines, is often colored purplish red. Red coloring may be observed on many other flower-buds, leaf-buds, and on young leaves in early spring. Because a pigment is useful in some instances in rendering flowers conspicuous, it does not follow that in other cases its *role* may not be entirely different. It is believed that red coloration is often beneficial to plants in raising their temperature by converting light rays into heat.

That red coloration does actually raise the temperature can be shown by the following experiment. Place some red leaves, the superficial area of which has been measured, in a small glass flask of water. In another flask containing an equal quantity of water put a few green leaves with the same extent of surface as the red leaves. Place a thermometer in each flask; close them and set them in the sunlight. After a time the water in the flask containing the red leaves will be found to be 4 degrees C. above the temperature of the water containing the green leaves. The water in the second flask will also be a little warmer than at first, as the green leaves produce some heat. On a cold day in springtime, when the air is near the freezing-point, an increase of only 4 degrees C. might be a great benefit to a plant. In the same way red styles may aid the growth of the pollen-tubes.

No doubt some confusion has been produced in regard to nectar-guides by some observers supposing that all dots, stripes, and markings were intended for this purpose. Of course the splashes, maculations, marblings, and variegations produced under cultivation by the artificial selection of the florist have no bearing on this question, except to show that markings can be produced easily by selection. But there are many flowers which have yellow spots, or marks of some color, directly over the nectaries; so, too, there are flowers with colored lines leading directly to the nectar; or in long tubular flowers the path the insect should travel is indicated in various ways. I see no reason why these pathfinders may not be helpful in guiding bees to the nectar, on the same principle that a way blazed through the forest by scarifying the trees is helpful to the lumberman. That such marks are sometimes correlated with the nectaries is shown by the fact that in *pelargonium*, when the nectaries disappear, the nectar-guides also vanish.

No one to-day claims that *all* the markings on flowers are nectar-indicators. Two hues are an advantage in the same flower, since, by contrasting with each other, each is made more conspicuous than when alone. The value of such color contrasts is well shown by the *Compositae*. Here the field daisy has a yellow disk and white rays; the cone flower a dark-brown disk and yellow rays, while the aster has a yellow or brown disk surrounded by blue rays. Red veins in green sepals are probably the result of oxidation and the production of anthocyan as a by-product. Nectar-guides seem no more remarkable than nectar-covers, or the

protection of the nectar from rains by tufts, fringes, and gratings of hairs, or by projecting scales. It is noteworthy that, in some flowers, the wrong path to the nectar is beset with prickles and sharp points. Nocturnal flowers do not have nectar-guides, since they would be invisible in the dark. It is certainly desirable, however, to test the question experimentally.

Irregular flowers have nectar-guides much more frequently than regular flowers. Mr. Ryan thinks that this order should be reversed, and that such marks are more needful to regular forms. In this opinion he seems to be alone. A season's observation in the field should make it clear why regular flowers do not require path-finders. Rotate flowers like the strawberry, five-finger, and carrot have the nectar secreted at the center, where it is largely unprotected, and exposed to all comers. When an insect alights upon the flower the nectar is directly in front of it. As a result, such flowers, if the nectar is abundant, are visited by a great company of miscellaneous insects, as bees, wasps, ants, flies, and beetles. Even the most stupid species readily find the nectar. Many of them are mere pillagers and are of no benefit. I have collected more than 80 different kinds of insects on the prickly sarsaparilla. Recently Dr. Banks, of the Entomological Bureau at Washington, published a list of 382 different species of insects which he had collected on the flowers of *Ceanothus*. Such flowers do not need nectar-guides. The nectar is too easily obtained as it is; they need protection for the nectar. This is afforded in irregular flowers.

Irregular flowers have the nectar deeply concealed where it can be obtained by only a few (sometimes by but one) species of insects. In the island of Madagascar there is an orchid with a nectary 12 inches long, a specimen of which I have seen in bloom in the botanical garden at Cambridge, Mass. There is only one species of moth in that island which has a proboscis long enough to drain up the last drop of nectar. In bizarre-shaped flowers like the turtle's-head, monkey-flower, and bee orchis, the nectar can be found only by the most intelligent insects. Often they are compelled to enter within the corolla through a narrow mouth, or even through closed lips. The turtle's-head, as the name indicates, crudely resembles in form the head of a turtle. The flowers are white, but the lips are red. It is easy to understand that a bumblebee coming to a cluster of flowers would much more quickly find the entrance than if the lips were white.

As a matter of fact, bumblebees do enter the corolla without any delay; but I have seen wasps and flies examining the outside of the corolla for a long time vainly trying to find the nectar. Comparatively few injurious insects ever find their way into irregular flowers. Irregular flowers then require nectar-guides because the nectar is concealed and difficult to find. The fact that they are present in such flowers is certainly a strong argument in favor of nectar-guides.

Mr. Ryan says that the cryptogams (seaweeds, fungi, mossworts, and fernworts) "owe not one tittle to the insect world." On the contrary, there is a family of fungi (the *Phalloideae*) which are called the flower fungi. They display bright colors, and produce a sweet tough mucilage with a nauseous odor. This is eagerly visited by flesh flies, which thus widely disseminate the spores with which the mucilage is filled. Honeybees also sometimes gather the spores of fungi as a substitute for pollen. As a rule, however, the spores of these lowly plants are very effectively distributed by the wind. The spores of seaweed are carried by the water in which they live.

It is freely admitted that insects will gather nectar from green flowers, and honey-dew from green leaves, after these sources of sweet supplies have once been found; but they will not be found as quickly on green-colored substances as they will on bright-colored ones. Let us again appeal to experiment. I accustomed a small number of bees to visit a piece of dull-gray board on which there was a small quantity of honey. For convenience this board will be called the feeder. While the bees were busily at work I laid on the grass of the lawn, three feet from the feeder, some blue floral leaves of the bee larkspur, placed between two glass object-slides, 3 x 1 inch. On the upper glass slide there were a few drops of honey. On a dandelion leaf, also three feet from the feeder, but five feet from the blue floral leaves, honey was also placed. As soon as the honey on the feeder was exhausted the bees began circling in the air looking for more. In a few minutes one bee had found the blue slide; in ten minutes two bees, and in twenty-five minutes five bees; but none had found the honey on the dandelion leaf. At the end of forty minutes one bee had found the honey on the dandelion leaf. In this experiment the advantage was clearly on the side of the conspicuous object. If two flowers were blooming at some distance apart, the one bright-colored and the other

green, the former would be the more likely to be pollinated.

I later repeated this experiment, and performed many others in which the brighter-colored objects received the greater number of visits. From these experiments we conclude that any surface, whether it is bright or dull colored, on which there is nectar or honey, will be freely visited by bees for stores after these liquids have once been discovered; but they will not be discovered as quickly on a surface which does not contrast in hue with its surroundings as on one which does so contrast. In other words, bright-colored flowers have the advantage over green ones.

After a flower has been found by insects the number of visits it receives depends upon the quantity of nectar it contains and not on its color or odor. Many gaudy garden exotics offer neither pollen nor nectar. Honeybees visit them occasionally, as I have observed; but, finding nothing to repay them, they afterward remember their former experience and seldom pay any attention to them.

Mr. Ryan states correctly that the poppy contains no nectar, and apparently thinks that there is, therefore, no reason why it should be visited by insects. The poppy is a pollen flower. Insects visit it for pollen only. The roses are also pollen flowers. During the past summer I was astonished to observe how many bee visitors there were, and how quickly they removed all of the ample supply of pollen from the Japan roses (*Rosa rugosa*) blooming in my garden. There is no need of the roses secreting nectar. The pollen attracts all the visitors required. But bright colors and odors are as valuable to pollen flowers as to nectar flowers.

I see no reason for changing my statement that irregular flowers only "occasionally" revert to the regular form. This is a matter of common observation. The larkspur, violet, white clover, snapdragon, wistaria; sage, linaria, and several orchids are some of the more common flowers which have been known to revert to a regular or wheel-shaped form; but no reader of GLEANINGS has ever seen these flowers often become regular. Mr. Ryan appeals to Mendel's law; and after referring to Mendel's crosses of the different varieties of the garden pea, he adds: "Here, then, the irregular form *unmistakably* (italics Mr. Ryan's) reverted to ancestral stages and produced regular forms" (quoted from my paper in GLEANINGS, Jan. 15, p. 54). Mr. Ryan is mistaken; for in not a single experiment of Mendel's in crossing the

varieties of the garden pea did the flowers lose their papilionaceous or irregular form and become regular. I was so astonished at Mr. Ryan's assertion, that I wrote to one of the first authorities on genetics in America and Europe, and inquired if he knew of any facts on which such a statement could be based. He replied: "I have read carefully Mendel's original paper giving the account of his work on varieties of the garden pea, and it contains no mention whatever of the flowers having lost their papilionaceous character." And he adds that he never before heard such a thing intimated.

Cross-fertilization versus self-fertilization is a most interesting question. I can not agree that Darwin's dictum, that Nature abhors *perpetual* self-fertilization, has been "upset." It will be noticed that I emphasize *perpetual*. Let us inquire first whether cross-fertilization is beneficial or not. Darwin showed conclusively that it is. The offspring of crossing were larger in size, grew more vigorously, bloomed a little earlier, and yielded more seed. Since then we find Dr. Fletcher saying in the A B C of Bee Culture that endless observations have confirmed the accuracy of Darwin's law. The evil effects of constant interbreeding are instinctively recognized, even by barbarous races.

The latest authoritative word on this topic is given by the President of the Carnegie Institute of Washington in his annual report. He says: "Another investigation continued during the year, which involves prime utilitarian application, is that of Dr. Shull on the effects of self-fertilization in maize, or Indian corn. His earlier conclusions, published in 1908, have been confirmed by his later studies. A striking result from the latter is that, other conditions being the same, *the yield of cross-fertilized plants proved fifty per cent greater than that of self-fertilized plants*" (italics ours). Farmers! fruit-growers! Cross-fertilization in plants is not only of benefit to the plants, but it is of financial value to you. A knowledge of this great principle will put money in your pockets.

Look over the plant world and see how wide is the provision for cross-fertilization. All the cone trees are cross-fertilized. In all the species the eggs and sperms are produced in different cones; and where both kinds of cones occur on the same tree, the fruiting cones are in a position where they are not likely to receive the pollen from the staminate ones. How well the cone trees have succeeded! How vast are our forests of pine, of fir, of spruce, and larch!

Most of the grasses and sedges, which in myriads so beautifully clothe the earth, are cross-pollinated. Many of our deciduous trees, like the birch, the poplar, and the willow, depend wholly upon inter-crossing. A multitude of herbaceous plants secure cross-fertilization by the most ingenious contrivances, and there are very few which do not secure an occasional cross.

But if cross-fertilization is so valuable, it may be asked, "Why do so many plants retain the power of self-fertilization?" The reason, it seems to me, is obvious. If a species becomes rare, it is likely to disappear unless it can fertilize itself. Species represented by only a few individual plants, widely scattered, may linger along in favorable locations indefinitely, if they can fertilize themselves and thus produce seed. It is better for a species to be self-fertilized than to perish. There are hundreds of rare species which do thus prolong their existence. It is clear that, if a plant which has lost the power of self-fertilization, becomes isolated, it will be unable to produce seed, and, consequently, will leave no offspring. It is desirable, therefore, for plants to retain the power of self-fertilization against an emergency.

Plants that are regularly self-fertilized have usually small flowers, and are adapted to special conditions. They are stationary or retrogressive forms which are no longer advancing in development. For species which are evolving rapidly, inter-crossing is a necessity. Nature may not abhor self-fertilization, but she does abhor *perpetual* self-fertilization.

There are some exceptional cases where plants rely on vegetative multiplication; and there are flowers, as some species of *Taraxicum* and *Hieracium*, which produce seed without pollination or fertilization; but it would be folly to argue that, therefore, sexual reproduction is of no value. It would be equally a mistake to condemn cross-fertilization because there are some species which are self-fertilized. In deciding as to the application of a great natural law we must take a broad view. I was once present in the United States Supreme Court when one of the justices, in speaking of the application of certain law relating to shipping, said in effect: "We must look, not at one point, but all along the shore, including the Atlantic, the Gulf, and Pacific seaboard, and the shores of the Great Lakes." So should we study a great natural law.

From the list of prismatic colors, indigo was intentionally omitted. The term is omitted from many modern text-books on

color. Prang in his "Standard of Color" does not even mention it. Rood in his "Text-book of Color," says, "The term indigo, originally introduced by Newton, has been entirely rejected in this work." There are objections to the term, and Prang covers the ground by using combinations of the terms blue and violet.

It has been necessary to reply to Mr. Ryan very briefly; but the above statements can be substantiated by a great amount of additional data. We hope other beekeepers will express an opinion. The question really resolves itself into this: Are the eyes of bees good organs of vision? It seems impossible that any man can be a beekeeper for half a lifetime, or for even half a dozen years, without forming an opinion on this matter and being able to give a reason for his belief. There are some phases of bee-keeping on which it is difficult to say anything new; but, so far as we can recall, very few have given their views on the vision of bees. The editor of GLEANINGS believes that they have well-developed sense of sight. So does Buttlet-Reepen, who suggests that, if you doubt it, you stand about ten steps from the entrance to the hive on a morning during buckwheat harvest, when you will have painful proof of their ability to see. Mr. Dadant thinks that bees "can see very far." Notthafft and Plateau, on the contrary, believe that bees are exceedingly short-sighted. What do you think? There must be scores of apiarists who can give some facts bearing on this question. The department editors of GLEANINGS, with their vast experience, must have very definite ideas on bee vision. The question is surely of great importance to all, and especially to queen-breeders. Will you not let us hear from you? We are after the facts—the truth. *Veritas vos liberabit.*

Waldoboro, Maine.

FENCES FOR WINTER PROTECTION

BY R. F. HOLTERMANN

It was with a good deal of interest that I made a study of the special number on wintering, Sept. 1. Such numbers concentrate ideas and writings upon a specified subject, and are convenient for reference.

The wintering of bees is a subject which has received a good deal of attention, and upon which, through pen and tongue, and (may I add?) practical demonstrations, many ideas have been advanced. In this way decided progress has been made; and if we were always able to do what should be done, beekeeping would be on a different

footing. I say *beekeeping*, for I do not confine its effects to the wintering problem alone. Bees, if put in proper shape for winter, build up better in the spring and give a better honey crop. This side of the question has not received the attention it merits.

There is a long-distance view—a vision, if you will—which I have had for many years, which applies to the beekeeping industry in general, and the correctness of it does not reflect any very great credit upon beekeepers; but this view will remain true as long as bees are largely in the hands of those having other business interests.

For many years I have been able to foresee heavy winter losses under certain conditions. One condition under which these losses occur is failure of the late honey-flow in sections where a flow is usual, or where there is any quantity of honey-dew in the brood-chamber, or where the entire apicultural season has been unfavorable. Then there is the constant selection of the most unfit, which often results from our modern methods, when the colony is headed by a queen which keeps the brood-chamber well filled with brood to the exclusion of stores, in such a condition that starvation is likely to occur before spring. Such a forecast should not be possible in beekeeping; but it is true in Canada and the northerly if not the middle States. Human nature remains much the same. A "sufficient unto the day is the evil thereof" policy has ruined many.

"OPEN" FENCES NOT DESIRABLE.

In the discussion about fences, I was especially interested. I have five such fences, each covering ground space from 40 to 50 ft. square. These fences answer a purpose entirely different from a railroad fence. My fences are 8 ft. high, and have for their purpose the keeping of cold winds from the bees during autumn, winter, and spring, and, incidentally (and a very desirable feature), keeping the snow from drifting about the bees. The only object a railroad fence has is to prevent large snowdrifts on a railway track. With a fence built so as to leave openings between the upright boards, surely the greatest amount of *shelter* is not obtained. By an open fence the railway company secures a distribution of the snow; a portion of the snow rests on one side of the fence, and the rest will drift through and over the fence, and thus the snow is distributed over a larger area. In parts of the country where snowdrifts are very prevalent I have seen two such fences on each side of the track in order that the second fence might catch what the first did not. The wind and tem-

perature are of no interest in this matter; but the snowdrift is all-important. I am so particular to shelter the bees from this wind that I consider it quite injurious to the bees to have even an opening under the fence. In a couple of instances where these existed, owing to faulty construction, I have taken care to have them stopped up. On a bitterly cold, windy day, would a beekeeper take shelter in a place protected by a tight board fence, or in one with an opening between the boards, such as is advocated by some writers? I know where I would look for shelter, and I feel so sure that every one else would know that I shall not undertake to answer the question.

With three winters' experience with the tight-board fence in three apiaries, the snow drifted last winter for the first time inside the fences; and the reason for this was because we had two very heavy snowstorms with high winds; but even in this case the drifts which were next to the fences could have been thrown out through the open spaces which the loose boards in the fence afford. It must be remembered that in most storms the wind and snow will blow right across a space enclosed in a 40 or 50 ft. area enclosed by a fence 8 ft. high. The space inside of the fence is not a vacuum, and the tendency to a downward pressure is largely overcome by the air in the bee-yard.

In conclusion let me say I am quite satisfied with tight board fence. I have put up two more such fences this autumn. It is well to get the bee-yard well shaded with trees in summer, as this shade reduces the tendency to swarm, and in the winter the branches of the trees lessen the effect of the wind.

Brantford, Ontario, Canada.

SOME EXPERIENCES IN SHIPPING BEES

The Importance of Giving Bees Water on the Way

BY G. C. MATTHEWS

In the spring of 1911 I went to Colorado to ship several cars of bees to Idaho Falls for a company in Ogden, Utah. Some of the bees were already bought, among which were my own sadly depleted apiaries which another man had been running. The season of 1910 was a hopeless failure, and what bees had not starved were in a sad condition in March, 1911.

At such an early date, foul brood, though present, shows very little, and one must be exceedingly careful to find every part of it. In addition, the ordinary hives need lots of

fixing before they can be shipped; and I was fortunately delayed in shipping until April. I say "fortunately," because the bees were thus given a chance to rear some brood, and become nearly normal. Had they been left in Colorado three weeks longer it would have been more fortunate, for bees should never be shipped when there are few young bees in the hives.

Two cars of the bees—one from Loveland, shipped April 1, one from Sterling, shipped two weeks later—were sent with a comb-honey super on top of each, screened. The two from Longmont had narrow screen frames. All of them had water dashed into the outside combs, which were invariably empty. All were loaded in tiers packed tight in the car, and with two-by-twos between. In short, they were loaded alike, I think, though I did not load, nor have any thing to do with the Longmont cars. But those with the deep screens reached Idaho with much less loss, and all of the living colonies were in far better shape. Was the extra clustering-space on top the cause? It appears so, yet weather may have cut some figure.

In June I loaded another car in Ogden. These were full colonies that had been swarming; but a dearth of honey had stopped it; and they were fed sugar syrup before screening. They too were covered with comb-honey supers — the strongest with two, and in addition the entrances were screened. They were also watered in the same way, and loaded in the day time as the others had been. These bees were kept closed in for three days and nights in all, *during the swarming season*, and were hauled upon hay-racks and beet-racks, and yet only one unusually strong colony smothered, and few bees in any hive were lost. I forgot to mention that the bees were watered at unloading also. Did the large space over the frames, plus the water, insure the success of this shipment? I think so.

During the spring of 1912 I helped to ship five cars of nuclei from California to Utah and Idaho. All of these were weak compared with full colonies; but they were shut in single-story ten-frame hives on six frames, with the screen down on top of the frames, and they were not watered at all. The bees could cluster at the side, but not over the frames. I saw only one car unloaded, and fully half the bees were lost in each hive, while the owner says he usually loses a great many old bees.

Now, this particular car was held up during the heat of the day twice during the trip, to which cause the owner attributed

the loss. The weather also in Nevada was hot when we passed through. But the car shipped from Ogden to Idaho Falls in June, 1911, stood on the tracks through all the heat of the day in Idaho Falls on the second day, though the weather was not so hot. But the bees were three times as strong, and hence hotter.

The difference, as it appears to me, lay not in the weather nor the motion, nor in the extra time of being shut in (the California bees were closed in for five days), but in watering and the clustering-space. If bees can get above the brood they will not smother it; and will not eat it if they have water.

Now just a word about how to water. If one has extra dry combs, water put in these is best; but some use cans of excelsior, tacked in the sides of the hive, quite successfully. I presume that it is best of all to water *en route* with a spray; but it is not necessary for nuclei if there is water in the hive.

If bees are watered at unloading they are not nearly so liable to swarm out when opened, and be lost. A dash of water in each hive suffices. When they are shut in I should say always give water at every opportunity.

Carneyville, Wyo., Nov. 5.

[Our own experience has shown the great importance of giving water on the route. We are convinced that, when it is supplied to them often enough, they will not destroy their brood, and the chances of the bees getting through in good order are immensely improved.]

If ordinary strong colonies are shipped, it is also important to have a clustering-space over the top of the combs. With ordinary weak colonies, such space, according to our experience, is not necessary, but such bees must be supplied with plenty of water just the same.—ED.]

Bee-stings an Eye-opener

The following item was clipped from the *San Francisco Call* of yesterday, Oct. 5. Like lots of others I've had my eyes opened by being stung, but not by bees. Bee-stings usually act on me for a day or two the other way.

Oakland, Cal., Oct. 6.

GEO. MALCOMB.

A PLACERVILLE APIARIST IS SAVED A VISIT TO A SPECIALIST.

CHICO, Oct. 4.—While changing a swarm of bees from one hive to another, George Bailey, who lives near Placerville, and makes a living selling honey, but who has been almost blind for some time because of some ailment of his eyes, was stung on the face and eyelids by several of the bees. Bailey intended to go to Sacramento today to consult a specialist with a view of having his sight restored; but the bees did the work that he intended the specialist should try to do. The effect of the stings has been to restore his sight.

Heads of Grain from Different Fields

Do Bees Lose Their Stings After Using Them on Other Bees?

Dr. Miller's Straw, page 540, Sept. 1, was a surprise to me. On many occasions I have noticed that it is a rule that has few exceptions that bees do not lose their stings when using them on workers, queen, or drones.

The A B C book in speaking of bees living after having lost the sting, says, "The author has seen a colony so infuriated that the bees stung every thing in sight—fence-posts, etc." They surely did not lose the stings in a board. Cotton gloves coated give full protection. Now for the exception.

I released a queen too soon last week, and she was soon stung in the thorax. The bee that stung her lost its sting. I recovered the queen at once and removed the sting, and caged her again with some of her bees. The front leg on the side where she was stung is paralyzed; otherwise she seems all right.

I once saw a very strong colony on twenty combs (three of which were drone) sting hundreds, probably thousands, of their drones to death—no doubt of it. It was 5 P. M. on a hot day some days after the flow had stopped, when these bees attacked the drones. The drones would fly away only to return. After a while I noticed that many a drone had a worker clinging to it when leaving, and those would soon fall to the ground, where the drone often escaped. Often both the worker and the drone flew away. Many times, however, the drone was stung. The worker would then release the drone, turning about and pulling until the sting came out. The worker then returned to the hive; but the drone so stung never flew again. I did not notice a sting being lost. I think a bee that "curls up," as Mr. Holmes says, p. 660, Oct. 15, has been stung in the abdomen. At least the abdomen is very frequently stung. This is my personal observation—not guess-work nor hearsay.

Tola, Kansas, October 22.

P. E. WAUGH.

[Our correspondent, as well as the one who follows, has given some interesting facts to show that bees may use their stings in a wholesale way to kill both drones and workers without losing either their lives or their stings. We certainly have seen cases where the sting of a worker was left in the thorax of a queen. We can not recall that we have ever found a worker or a drone with a sting lodged in its side. We would conclude that bees do not lose their stings when they use them *against each other*. It is probably not necessary that they should; but nature has evidently designed that, when they attack men or animals, their weapon shall lodge in the wound in order that its effect may be much more severe. The mere prick of a sting probably would not have any serious effect on any man or animal; but when the sting is left in the wound to force out all the poison in the poison bag into its victim the effect is tenfold greater.

In this connection it is proper to observe that some other insects do not have barbs to their stings. For instance, the ordinary yellow-jacket can sting several times—or at least it has been reported that it will, while a honeybee stings only once. If any one else has any further facts to corroborate, we should be glad to hear from him.—ED.]

No Stings Found in Bees Stung to Death

Under Dr. Miller's Stray Straws, p. 540, Sept. 1, "Do bees sting drones to death?" the editor says, "We do not believe that nature has designed that worker bees shall sacrifice themselves, etc." I take it for granted that a worker would make the same sacrifice in stinging a worker that it would in sting-

ing a drone. But does it kill a worker when it stings either a drone or a worker?

A few days after I read the Straw I noticed a small swarm out (probably with a virgin that ran off and left them). Anyhow, the swarm came back, and went in with a weak colony that had a three-months-old queen. Knowing that this particular swarm would not be likely to supersede, I looked for a fight. Well, there was a fight sure enough, and I did not try to stop it. I wanted to see how many stings I could find in the dead bees. The next morning I looked the pile over (about a quart), and there was nothing to indicate that they had been stung to death. So far as I could judge, the swarm they went in with had not lost any bees. I'm from Missouri, and want to be shown.

Redlands, Cal., Oct. 22.

M. J. MEEKEE.

Was the Clipped Queen Killed Because She was Unable to Accompany the Swarm?

Does clipping the queen ever lead to trouble when her bees swarm? The following incident would seem to indicate that it may under some conditions. During the past season I was forced to be away from home several days each week; unfortunately, the rest of the family were also absent. I made the best arrangement I could to keep the bees from swarming, giving the queens plenty of room, and, in fact, according to Mr. Dundas Todd, our foul-brood inspector, rather overdoing it. Queens were all clipped, and I thought every thing was all right. My hives were arranged in pairs, with about six-foot intervals between the pairs—just a nice space for a newly hatched litter of chickens; and so, not knowing what else to do (the garden is small, and I had about thirty hives scattered about), I placed the chickens, with the old hen, in a coop immediately in front of two hives of gentle black bees, and left for the day with a peaceful mind.

About the middle of the day a lady visitor found the chickens all dead, and the old hen in bad shape. Also quite a number of dead bees around, and on trying to rescue the hen the lady herself attracted some very pointed attention, and was finally forced to vacate in favor of the bees, which, I understand, were flying in greater numbers than usual, and were very cross. I found every thing quite normal in the evening, and could not account for the accident.

I afterward found a young unclipped queen in one of these hives, and came to the conclusion that the bees must have swarmed out, and, finding that the queen did not accompany them, returned and killed her, and incidentally the hen and chickens, after which they raised another queen.

FRED E. WHITE.

North Vancouver, B. C., June 10.

[Your solution is probably the correct one; but it is possible that the chickens themselves killed the queen, which they might have done if they had acquired a liking for bees, and if a swarm had issued leaving the clipped queen crawling around in the grass.—ED.]

Poison Not Found in the Honey when Fruit-blossoms are Sprayed

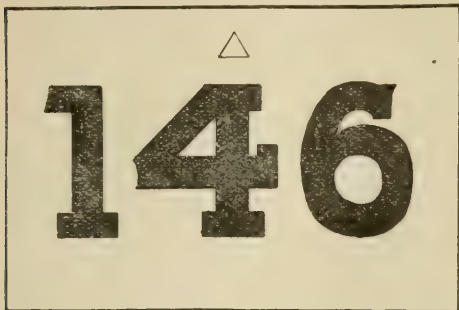
On p. 559, June 15, I see the question, "Is spraying of fruit-trees while in bloom injurious to either bees or brood?" While at first thought we might be led to believe that the bees in question were killed by the spraying, I am of the opinion that this can not be; neither do I think that the brood is in any sense injured by the very small amount of arsenic that is usually found in the various sprays used. I have used the Bordeaux mixture and the arsenate of lead very lib-

erally on my trees at blooming time, and have noticed no bad results to either bees or brood. I also analyzed the honey gathered from the trees for arsenic, and found no trace of it by the delicate test made use of by our profession. I am of the opinion the bees referred to died from other causes.

Anderson, Ind., Aug. 1. BENJ. H. COOK, M.D.

Tin Hive Numbers Held by Nail to Hive Body

I noticed in GLEANINGS a desire for ideas on hive numbers. I submit a sample of hive number showing what we use and like. A triangular hole enables the plate to be hung by a shingle nail driven into the hive body so as to project $\frac{1}{4}$ inch. This size, $2\frac{3}{4} \times 4$, is cut from a fair quality of tin



with the minimum waste. The size is also very convenient for the pocket. The sharp angle at the top of the notch prevents the number from blowing off the nail. I don't think much of your cardboard idea.

Palo Alto, Cal.

H. STILLSON.

How to Avoid Foam on Top of Bottled Honey

Kindly advise me how to avoid the foaming on top of extracted honey in jars. In some of the jars it forms, and in others it does not. The honey is from white clover, was strained through cheese-cloth. It was two-thirds capped before it was extracted.

Brooklyn, N. Y.

A. KIRSCH.

[Unripe honey always gives more trouble in this way than that which is thoroughly ripened; but if yours was two-thirds capped before it was extracted we hardly think that this was your trouble.]

It is well to strain the honey through as thick a cloth as it will run through when hot, as this removes a good deal of the air. Then allow it to stand so that the air-bubbles may rise to the top as much as possible. Draw it off at the bottom of the tank, and be careful to avoid stirring or shaking the honey in the bottles, so as not to get the air mixed in with the honey.—ED.]

Chickens that Did Not Eat Bees

To prove an alibi for those chickens, p. 637, Oct. 1, I will give an instance of my chickens, which have had a good opportunity to eat bees but which do not show evidence of such a depraved appetite.

I live in a semi-arid location, away from any irrigated land except my lawn, about 30 feet square, sown to white clover. I keep about 20 chickens, and have 9 stands of bees. The lawn is the only source of green food for the chickens, and there are very few grasshoppers and such insects for the chickens to catch, so one would suppose that, when the bees and chickens were busy at the clover the chickens would eat bees as well as clover.

My bees were blacks, and I requeened them with Italians, which caused me to watch them while

working on the clover to see how rapidly the change from blacks to Italians was coming, and also what the conduct of the chickens toward them was, and I never found them guilty. Later in the season, when watermelons were ripe, I cut the small ones in two and set them where the hens could eat them. The bees found them first, and got busy, and even fought among themselves for room on those melons, which were covered over with bees when "Brigham Young" and his family would arrive on the scene to look after the seeds and pick the melons up a bit to make some juicy spots for the bees to work on. There was a fine opportunity for bee-eating, as the bees were too busy to make room for the hens; and you could imagine Brigham instructing his wives to be careful not to touch dad's bees.

Bishop, Cal.

G. M. HUNTINGTON.

[It is quite evident that chickens, unless they acquire the habit, do not care to eat bees. They probably learn to eat them by picking up dead bees first, and then later becoming so bold as to tackle the live ones.—ED.]

Wintering in an Upstairs Room Not Advisable

I wish to ask you how it would do to winter four stands of bees in an empty house in one room or one in each of four rooms, with the windows closed tight or partly open to allow the bees to fly out and in during nice days in fall and spring.

Bremen, Ohio.

J. C. NAGINEY.

[As a general proposition, it is not advisable to try to winter bees in a building above ground unless the entrances are so arranged that the bees can fly when the weather is suitable. If you remove the window of the room in which you locate these four colonies we do not know that there will be any objection to your wintering them in the manner you suggest. But it will be best to place the hives as close as possible to the window so that the bees, when flying in, will be more apt to go into their own hive. You will probably find, however, that there will be some "drifting"—that is, one or two of the colonies may attract the larger number of flying bees on warm days, so that the others will be weakened.]

If the temperature of the cellar under the house could be kept nearly uniform—between 40 and 50 degrees—we think you would stand a better show of bringing the colonies through in good shape if you place them there rather than in the upper room; then they would not need any opening to the outside for flight; for where the temperature does not vary, the bees may be confined until spring.—ED.]

Four Tons of Honey Sold at 12 Cts. a Pound

My apiary is the most northern of any in Canada—at least, I think, in the province of Quebec. I have 140 colonies, and we have had an unusually good year for clear honey. I expect four tons. I have sold at 12 cents per pound for the last three years. I have no trouble in getting that price. What I have left after my home trade I sell to Ottawa customers.

Yarm, Quebec.

ROBT MCJANET.

Bees Swarm in October

I noticed the statement by S. H. Fuller, Helena, Ark., Oct. 15, p. 668, about the bees swarming the 8th of August. I can go him some better, for my bees have swarmed twice since then—October 8 and again on the 9th. My bees are still storing honey in the supers. I had to put on six supers with partly filled sections last week. This is the latest I have ever known them to store any honey; but every thing is late on account of the overflow last spring.

Marked Tree, Ark., Oct. 21, R. C. GRAHAM.

A Divided Brood-chamber for Cell-building

I desire to know about the divided brood-chamber for the rearing of queens as given in the "Modern Queen-rearing." The answer, I presume, is obvious enough, and yet perhaps my reasoning would be at fault. In the divided-brood-chamber method, are the bees allowed to come directly from the field into the center compartment—that compartment in which the queen-cells are being built, and from which the queen is excluded by the use of perforated zinc? I should also like to know why it wouldn't be just as well to have these three frames at the side of the hive instead of in the center, thereby eliminating the necessity of moving the queen first from one to the other compartment. I take it that, perhaps, this would be more liable to cause the cells to become chilled; and possibly being to one side, and, therefore, not breaking up their home so much, would cause them to be indifferent in their attention to the cells. I do not think I have misunderstood the plan, and I think I can see sufficient reason for the cells being in the center of the chamber, but wondered what experience had shown.

Salisbury, Vt.

FRANCIS J. PETERSON.

[Referring to the divided brood-chamber, on page 11 of "Modern Queen-rearing," we may say that the bees from the field have access to all compartments of the hive. Ordinarily the bees would store most of the honey around the brood where the queen was, neglecting the other side from which she is temporarily absent. Then when she is transferred over to the other side the bees will begin storing their honey where she was, and where the eggs are being laid. As a matter of fact, the workers are perfectly free to go to any portion of the hive; but the queen is confined to one side or the other.

It is much better to have the cell-building right in the center of the hive, because it must be in the warmest part. You have very largely anticipated the reason for this in supposing that the cell-building should be in the center of the hive on account of the extra protection and warmth. Then there is a further reason: If the hive were divided into two parts—one part of which was only one-third as large as the other part, and the cell-building were put on one side, the colony in the larger part would have more of the colony spirit; and as the queen would have access to all of the six combs, there would not be the same stimulus to complete the cells in the other section of the hive where there were only three frames. By dividing the hive into three equal parts, the portion where the queen is is so small that two-thirds of the hive is actually queenless; while with the other plan referred to, one-third of the hive would be queenless while the other portion would be supplied with a queen, and there would be brood in probably five or six combs. This condition would take away largely the desire to in the other portion that is separated off by means of perforated zinc.—Ed.]

Fermentation of Comb Honey Due to Continued Wet Weather

On page 705, Nov. 1, you ask some one to throw light on the question of comb honey, as asked by Mr. S. A. Fuller, Helena, Ark. This is the simplest thing in the world to diagnose. The honey was gathered with a very great surplus of water, and the bees in their rush failed to guess just when to seal it, and did it too soon. The result was fermentation. To make the matter more clear I will say that colonies short of bees during wet seasons when honey is coming in rapidly are extremely bad about sealing honey that contains too much water. I have had honey ferment in the hives so badly that actually the fermenting gases would burst the cells and cause the honey to run out. I have many times uncapped

honey that would be so badly fermented or soured that the honey in the cells would not be much more than a mass of bubbles. In practically all cases where this kind of fermentation was manifest, it was in weak colonies during wet seasons at a time when honey was coming in rapidly. A heavy rain will not cause this condition. It comes at a time when continued rains occur for days, and produce a very vigorous growth of vegetation, and when the nights are dewy. I have noticed that very great fermentation is confined to the colonies short of bees, and the fermentation decreases as the bees grow stronger, until none is noticeable in colonies that were normal or above normal. I have not had honey even taste of fermentation for four years, which is due to the dry weather conditions prevailing in Texas. I have had honey so badly affected in the combs in the hives that it had to be thrown away. It was not fit to eat and not fit to give the bees.

Bartlett, Texas.

H. P. ROBINSON.

Laying Workers; How to Get Rid of Them

On p. 523, Aug. 15, the editor advises Mr. F. B. Fenner to break up a hive and distribute the combs among other hives in order to get rid of laying workers. I have not the slightest trouble in dealing with these pests, and my remedy is as old as the hills. If I find laying workers I take the whole hive fifty yards away, out of view of the old stand; dump all the bees on the ground and leave them there. Then I take the empty hive and bare combs, and put them back on the old stand. I give the bees two frames of young brood, and the next day a cell or a queen if I have one. I have always been successful when doing this, for the laying workers do not find their way back.

MAJOR SHALLARD.

(S. Woodburn, N. S. Wales, Sept. 9.)

[It is true that this is an old treatment for the trouble; but it is a lot of work, and one or two have reported that it failed to work.—Ed.]

Comb-building Again on an Introducing-cage

I read with pleasure the article by Mr. Bigelow, Oct. 15, page 657. I had a similar experience. I set my queen-cage between two frames; and upon going there a few days after, I found a piece of comb with eggs. I had a queenless nucleus with nothing to raise a queen from, so I took the comb from the introducing-cage, and grafted it to the side of the frame. I went to that nucleus about one month later, and found brood in all stages, with a nice young queen which had been reared from this piece of comb. I think that beekeepers had better leave all cages in for awhile, and see what next will happen.

Webster Groves, Mo.

W. T. SALES.

Denies that the Honey Soured

In your issue of May 1, 1912, p. 265, you published a letter for me in which I was criticising Mr. I. Hopkins' method of extracting honey before being ripe, and ripening it by artificial means outside of the hive. In the above-mentioned letter I stated that Mr. Hopkins while in charge of the apiary in connection with our exhibition had some honey exhibited which soured. Mr. Hopkins has sent me a lawyer's letter in which he denies that there was ever any honey soured, and asks me to withdraw, or proceedings will be taken against me. As the beekeeper who told me he saw the honey, and noticed that it had gone sour, and of its sudden removal, is away in England at present, and is not expected back until December, I replied that all I could do was to write to GLEANINGS and state that Mr. Hopkins denies it.

A. IRELAND.

24 Andover St., Merivale, N. Z., Oct. 3.

Our Homes

A. I. ROOT

Wherefore, seeing we also are compassed about with so great a cloud of witnesses, let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

Our good friend T. B. Terry, in a recent number of the *Practical Farmer*, gave the suggestion of the above text, which has a double or treble application. Read it, and see what you think of it:

CARRYING A SACK OF FLOUR ALL DAY.

How would you like to have a quarter-barrel sack of flour, 49 pounds, tied on your back and have to carry it around all day long? Do you think you could stand it? Certainly you would not feel like doing much else. But don't you know this is what a person is practically doing who weighs 50 pounds more than he or she ought to? They are carrying around 50 pounds of dead weight unnecessarily. Some people high in office may carry more dead weight than this, even up to half a barrel of flour. Isn't this a pretty good reason why they ought not to be expected to accomplish much more. Twenty years ago the writer weighed about 30 pounds more than he ought to. His wife weighed fully 50 pounds too much. One of the gains from more simple ways of living has been the reducing of our bodies to normal size. Wife weighs plenty enough now, and still she has lost fully the weight of a quarter-barrel of flour. I weigh enough, 160; ribs are well covered, smooth, and plump, and still I have got rid of 30 extra pounds. I feel truly sorry for all people who weigh from 25 to 100 pounds more than they should, and would like to help them. They are expending part of their energy carrying around dead weight that is of no earthly use to them, and which may cause death prematurely. All that is necessary to reduce one's weight is to eat a little less than the body needs to run itself. Then it has to draw on the surplus stored-up fat for fuel. Plain, simple food only helps one about doing this. Very slowly the weight can be reduced with entire safety. But it takes will power, of course. Every pound of surplus fat laid on the body first went into the mouth as surplus food, extra beyond the amount needed to run the body well at normal weight. The body should be plump, well covered with flesh, but no more, to get most out of life.

Now, this is really a vital matter. I have good kind friends, and so have you; they are all around us, who are carrying such a burden as he describes, every day of their lives. I think it is true that these men or women who weigh 200 lbs. or more have more strength and muscle than some of us lighter ones, or else they would not be able to do any kind of work profitably, so handicapped with excessive flesh. This matter has already received much thought, and has caused a good deal of worry. We have proof of it in the anti-fat remedies and drugs advertised; and it has often been suggested that we cut down this superfluity of flesh by a more abstemious diet. I have talked with several friends in regard to the matter, and they claimed that keeping

hungry all the time does not help the matter very much, and I think a few have suggested that it made them fatter still. Now, a little surplus flesh or fat, whichever you may term it, is a pretty good thing. Witness Dr. Tanner's experiments described on page 497, Aug. 1st; and I might add also, what I have mentioned several times already. At one time in my life, in search of health I lived for eighteen weeks on ground lean meat—mostly beef-steak. I think that, when I started in, I weighed something like 135 lbs. At the end of the experiment I was down to about 112 lbs., and in this shape I could ride a wheel like a boy of fifteen. But it was quite imperative for me to have my beef-steak rations pretty regularly three times a day. The most that I craved during those eighteen weeks was ripe juicy apples. In fact, I lay awake night thinking how much I would give to have the privilege of climbing over into the orchard and helping myself as I used to do when I was a boy; and I think my good friend Dr. Salisbury made a mistake in saying that apples would harm me.

I am satisfied, as I have said several times before, that a great many people would get relief from their digestive troubles by taking up the lean-meat diet or sticking very closely to it, cutting off all sweets, unless it is such as are found in natural fruit. Well, it has been proved many times over (remember what I have quoted from Upton Sinclair) that one who is in a fair state of flesh can live not only days but weeks without any food at all, but using plenty of water, of course. It requires self-control, I am well aware; but what is a man in this world of ours who exercises no control over his appetite and animal passions? A great many times I think that cutting off sugar alone would relieve obesity; and, by the way, it would also cut off a lot of low passions and desires, as I know by experience. It always worries me when I see people putting heaping spoonfuls of sugar, or two or three of them, in a cup of coffee. The sugar in some other shape would not be as bad. A combination of hot water, with sugar enough just right to produce fermentation, and make "beer" in the intestines, is what causes a lot of complicated diseases. The superintendent of a great railway was troubled with terrible headaches. He went to a sensible doctor who, after questioning him about his habits, said, "You just stop

putting sugar into the coffee you drink three times a day, and at the same time abstain from using sugar in other ways, and then let me know if you are not all right." He followed the doctor's advice, and his headaches entirely disappeared.

I am sure Terry is right where he says that when you reduce the amount of food sufficiently your system will draw on the stored-up fat. At any rate I have twice proved this conclusively by the starvation cure. Plain simple food, without too great a variety, will do the same thing. It is the pie and cake and ice-cream, and perhaps nuts and fruit after we have *already* had a good square meal, that cause our troubles. The women-folks are largely responsible for this. I am begging Mrs. Root almost constantly to give us two less variety in our breakfast and dinner. Of course the table does not show off with so little on it, and, besides, it is not the fashion.

I recently saw a newspaper clipping to the effect that our Department of Agriculture, I think it was, appointed a commission of eight men and eight ladies, sixteen in all, to discuss the matter of the "high cost of living" and to provide a remedy. Well, in order to have a pleasant time while they transacted the important business they had a lunch. I presume that we who pay the taxes paid the expense of that "lunch." What do you suppose the bill of fare was for that crowd of sixteen? Well, it came to \$160, or about that, or \$10.00 for each plate while they discussed the *high cost of living*. I have suggested already in my former paper that the high cost of living does not need to trouble farmers very much if at all; but I forgot at the time that the farmers have to pay the taxes in order to provide lunches for some of our fashionable friends who hold important offices, at the rate of *ten dollars a plate*.

Terry suggests that it takes *will* power to stop eating when you are still ravenously hungry. Now you know, dear friends, I do not want to boast; but an illustration comes in right here. When I was between twelve and sixteen I had got hold of the vegetarian hobby. I was for four years so much of a vegetarian that I would not eat any chicken when we people on the farm had a "chicken dinner;" so you see I have pretty well tested a pure vegetarian diet and also a pure-meat diet; and my conclusion is that the great Father, in his merciful kindness and wisdom, has made us so that we can adapt ourselves to a great variety of food, or we might say to a wide condition of things. When some of

the family were once laughing at me about my vegetarian hobby a good kind friend who has been a friend to me through long years said something like this :

"Now, since you are making so much sport over our friend Amos and his notions, as you call them, I wish to say to you that I should be exceedingly glad if I could hold my own appetite and desires in such perfect control as that boy does. Very likely he will some time get over his vegetarian notions; but this habit he is forming in his early youth, of being able to control himself in these things where great men give way, will enable him to make his mark sooner or later."

Now, this friend's words have proven true—at least in a measure. But they would *not* have proven true had I not ultimately gotten hold of the strong arm of the Lord Jesus Christ. When I came to the point where I was obliged to admit that Satan was too much for me I would have *gone down* had it not been for my good mother's early teachings which prompted me to say as did poor Peter, "Lord, save or I perish."

Dear friends, T. B. Terry, when he talked about that sack of flour strapped to a man's back made a very happy illustration. I am tempted to laugh whenever I think of it; but do you not remember in reading in Pilgrim's Progress years ago (I hope you are reading it now once in a while at least) the picture of poor Christian toiling laboriously up a steep hill with a great burden strapped over his shoulders? I suppose he was wiping the sweat from his brow as he toiled along in that difficult uphill path. You may remember, too, how he came to a point where the burden tumbled off and went down into the "bottomless pit." His friend Evangelist touched the iron bands that Christian in his own strength could never have loosened; and the burden that had handicapped him for so many years was gone in an instant. Fifty pounds or more of useless flesh is a sad thing to carry through life! but, oh dear me! what is that compared with a load of guilt that many of us shoulder day by day, and can not, or imagine we can not, shake off? The papers have told us of a man who was guilty of murder. He escaped; but somebody else—an innocent man—*was sent* to prison for life for the deed. After many years had passed, and the guilty man was facing death, he confessed his crime, and the poor innocent man was set free. What sort of load did that guilty

man have to carry? I told you a few issues back of how much I was enjoying the presence of the Holy Spirit until I grieved it so it went away. A guilty conscience so burdened me that I could neither eat nor sleep until I got rid of that burden.

Our management has just asked how many there now are who took GLEANINGS at the time it was printed by windmill power. Huber tells me that we have letters from something more than fifty. These veterans who have stood by us all these years will remember the time when I knelt down in the darkness—spiritual darkness as well as real darkness—and asked God (if there was a God) to give me back the innocence and happiness of childhood, and how, down on my knees, I promised the great Father to give up all and every thing that I possessed, even life itself, to be freed from the burden of sin that was daily getting to be more and more burdensome. The prayer was answered, and with trembling footsteps I started out to explore the new heavens and a new earth; and it was then and there that these Home papers were started. God knows how soon or where the end shall come, or who shall take them up when I am called on to lay down my labors here on earth.

Perhaps we may consider how it is that men and women consent to handicap themselves with a surplus of *avoirduois* equal to a sack of flour or even more. It may not be easy to say just what brings this about. If we should hastily decide that it was due to overeating, it might sound a little tough and severe on some of our feminine friends who happen to be "plump" as well as "rosy." It is bad, without question, to be overburdened with flesh; but, my dear friends, it is worse to have a burden imposed on us by giving way to sinful temptations; and not only give way, but *invite* sinful thoughts and actions. The tobacco habit is a burden, as I think all must admit; but intemperance is a greater burden, and generally an additional one. Not only is it a burden on the shoulders of the wretched victim himself, but a burden on the wives and children who often go hungry, and lack in flesh as much as the others we have been considering are oversupplied. Tobacco and drink not only impose a burden but a constantly increasing burden. There is no need of denying it, for we see it all about us. Why should a boy in his teens invite such a burden—a burden not only on his body but on his finances?

Let me illustrate the difficulty of once

getting rid of the burden of tobacco habit. A good friend of mine at one of the Michigan beekeepers' conventions told me of being helped by these Home papers, and then he gave this illustration: He had been teaching a class of boys in Sunday-school, but he was a user of tobacco, and he very soon saw he would have to give up tobacco or give up his class. What should he do? He said he had thought it over, and prayed over it; and finally he decided that he could not stand before that row of bright young faces as a spiritual teacher while he knew, and *they* knew that he used tobacco. He prayed for grace to give up the tobacco, and rejoiced in the liberty and happiness he had found in breaking off the habit for Christ's sake. Two of his sons stood near me while he told the story, and they were not tobacco-users, and rejoiced to see that their father was emancipated from a habit contracted years before—perhaps when *he* was a boy.

Now, I should be glad to end my little story right here. Years afterward, when I met him again, I found he had given up his class in Sunday-school, and gone back into slavery, to the tyrant Habit. Now comes the *saddest* part of the story. He held on to his class, and kept his pledge faithfully for *three* full years, and *then* went back. We want to realize how big a job it is to get rid of this burden of bad habits and not have them come back.

In the 7th chapter of Mark, verses 21 and 22, there is a list of sins that burden poor infirm humanity: "Evil thoughts, adulteries, fornication, murders, thefts, covetousness, wickedness, deceit, lasciviousness, evil eye, blasphemy, pride, foolishness." The next verse, the 23d, explains how we come to shoulder such filthy and disgraceful burdens. "All of these things come from within and defile the man." You see it is all our own fault. We permit these foul weeds to take root and grow; and they do not grow, mind you, without encouragement, just as the crops in our garden do not grow without encouragement.

A great deal is being said in the papers of late in regard to the high cost of living. A recent issue of *Green's Fruit Grower* tells us how a large part of this burden is needless. Read it:

HIGH COST OF LIVING.

"There are in the United States 10,000 men who are making and distributing liquor." This great army is responsible for the high cost of living. Here are 5,000,000 men, women, and children dependent upon the liquor business. Who feeds them? The laboring man who last year turned over \$1,000,000 to them; who divided the loaf that should have gone to his family with the

families of the liquor men. Then there are 200,000 non-producers in the jails and penitentiaries of the country, brought there by liquor. Who feeds them? The overburdened taxpayers. Then there are the men engaged in maintaining the courts and prisons and patrolling the streets to keep the influences of the liquor traffic within decent bounds which, with the idle rich, often made criminal by red wine, make up 5,000,000 more. Then there is another side to the problem. Last year the population of the United States increased 21 per cent, but the production of beef cattle only 3 per cent, and this because 106,000,000 bushels of grain that should have been fed to the cattle of the country went toward making liquor.

If this could have been applied to its proper

uses the cattle would have increased 21 per cent, and the price of beef been lower.

I must confess that I did not realize before how the liquor-traffic throws burdens on the shoulders of each and all of us because we permit it to go on, as well as on the shoulders of drinking-men and their suffering families.

Wherefore, seeing we also are compassed about with so great a cloud of witnesses, let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

Poultry Department

"FORECASTING THE LAYING HEN;" OR, SELECTING FROM THE FLOCK THE BEST LAYERS.

On page 675, Oct. 15, I suggested that Lady Showyou did not perform her great stunt according to Mr. Leonard's philosophy or system; but it looks just now as if I owed him an apology; for he says the reason she laid an egg so regularly at about the same hour every morning until she came near a "skip-day" was that, to follow his rule or discovery, she would have to drop her egg in the night; and, like most prudent hens, instead of doing this, and causing breakage and loss, she decided to hold the complete egg in her ovary until daylight permitted her to deposit it in her regular nest in an orderly and orthodox manner. See what he says about it below:

Mr. A. I. Root:—I wish to make a correction, and a few remarks on Lady Showyou's record in GLEANINGS for Oct. 15.

Her record for March was 29 eggs in place of 20, as you have it. She also laid 29 eggs in August—in fact, she laid 29 eggs for each month, March, April, June, July, August, and 31 in May.

In GLEANINGS you made no mention of the fact that this hen was in the egg contest in Missouri, or that she was but one of many laying nearly as well, and having *but one skip-day*, as I claim they must have; but in place of quoting her as corroborative of my claim, you use her as an example in proof against it.

You cite her as a 24-hour hen laying an egg daily, laying *occasionally* a little later each day until they skip, and do not recognize that her skips come regularly, and can not, therefore, be accidental nor even *occasional*, but must be due to some law.

Now, I wish to go on record as stating that this hen is a 25.24 hours *ovary interval* hen, that meaning that she requires 25 hours and 24 minutes in which to create an egg.

She should lay 23 eggs between her skipdays in the months she lays 29 eggs, and she lays at 8 A. M. all of her eggs except three or four, because they come due the night before they are laid.

A hen that has an ovary interval of 25 hours must have eggs due one hour later daily; and counting from 2 P. M. they would be due at 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 P. M., and 1, 2, 3, 4, 5, 6,

7, 8 A. M., making 18 eggs due too late to be laid, and so held over until morning, and the three reported as laid scattering, totals 21; but as there were five to be laid scattering, there are two eggs carried over to be added to those laid before 8 A. M., so the actuality is 20 eggs laid before 1 A. M., and three eggs laid scattering—total 23, before a skip.

However, this is not the way I get at it. I find the hours in 31 days to be 744, and divide by her ovary interval, which gives 25.744 (= 29 eggs with a fraction of 19-25, which allows for the 24 minutes of her ovary intervals.

For ten months' laying there were 14 hens which laid 200 eggs or more, out of a total of 655 hens.

There were but two hens that laid better than my No. 1 in 9 months. There were but nine that laid better than my No. 2 in nine months. There were but ten that laid better than No. 2 in ten months.

My No. 2 has just finished two years' laying with 381 eggs.

My No. 1 laid, in her first two years' laying, 385 eggs.

These two hens have the same ovary intervals, and lay in the same manner.

There were ninety-two hens that laid 20 eggs or better in July contest. These hens were in the 36-hour ovary-interval class, or *better*, and skipped *but one day*.

These are the only kinds of hens I keep myself, and my claim is to be able to find them quickly.

There are hens in this contest that have never laid an egg, and others that have laid very few; and there is no *pen* that has done what it would had they been previously classified according to ovary interval.

Pen No. 28 (Brown Leghorns) laid in July as follows:

25, 21, 21, 23, 22; total, 114 eggs.

Pen No. 20 (White Leghorns), 23, 25, 23, 24, 22; 117 eggs.

Pen No. 13 (White Leghorns), 25, 15, 24, 30, 25; 119 eggs.

Many other pens could have made good records but for some poor individual. Many pens have one or two good layers, and the rest poor ones which cut down the total. By classifying as I suggest, many good pens could be made and the record beaten greatly.

Hens of 28-hour-ovary intervals or less lay like Lady Showyou. Below 28 hours their eggs fall a certain number of hours apart, according to their class.

Whenever the daily loss does not divide into the hours of any period of days evenly, the number of eggs to a cycle will vary to average up.

I am getting out mimeographed copies for publication, and expect there will be at least ten sheets the size of this—8 x 12.

I shall also offer my services to poultrymen who wish me to classify their hens into pens of the same laying ability. This is what you asked me if I could do, and I propose doing it. I have shown many, who say it is easy. A man came over from Jacksonville who is to start a large farm, and I shall either classify his hens or instruct him how to do so.

C. W. LEONARD.

St. Augustine, Fla., Oct. 30.

Surely our experiment stations, and those who have charge of the egg-laying contests now going on, can decide whether he is right; and if so, it looks as if he really *had* discovered something we had overlooked, or which was unknown until the present time. Can not somebody who is in daily practice with trap nests enlighten us?

INFERTILE EGGS; CAN THEY BE SORTED OUT BEFORE BEING PUT INTO THE INCUBATOR?

Some time back I said that competent men of experience had decided that no secrets or machine could tell any thing about the fertility of eggs before being given to a hen or incubator. One of our friends suggests that my position may be misleading, and submits the following:

In every lot of eggs taken from a breeding-pen there is a percentage unsuitable for hatching, or, rather, for using for hatching purposes. An experienced and competent man can set aside a part of this percentage simply by examining the eggs as he lifts them from the gathering-basket; but the other part of the percentage can be discovered only by candling—an acquirement which can be gained only by practical experience. If there is a small percentage of useless eggs in a well-kept breeding-pen, there will frequently be a large percentage in a flock kept as the ordinary farmer has his hens. This percentage often runs as high as forty, but say twenty-five. In most cases these twenty-five eggs are wasted! or if some of them do hatch they are worse than wasted by producing weakly or sickly chicks. If the farmer could avoid this loss, the advantage would be considerable in many ways. Last year the writer had charge of a poultry-plant where the stock had up to the time he took hold been abused in nearly every conceivable way. On arrival he found the incubators giving 70 per cent fertility, and of this 70 per cent about three-quarters produced living chicks. The hatching eggs were at once taken in hand, but without pre-incubating testing (for want of time), and the eggs then showed 80 per cent fertility. For the next hatches the eggs were carefully tested before being put in the machines, the result being 90 per cent fertility.

The specific gravity of an egg is no proof whatever that it is fertile or unfertile. The only way to know whether an egg is fertile or not is to break it and use a microscope on the contents. But pre-testing by a competent person usually gives results that more than pay for the time and labor.

Philadelphia, Pa., Aug. 14. FRED MARTIN.

Friend M., I agree that an experienced man or woman may sort out by the looks eggs that are more likely to be fertile; and perhaps the use of a candle or egg-tester may help a little, especially if the eggs are taken from a miscellaneous collection. Old eggs can be sorted out from

the fresh ones by means of an egg-tester. Some time ago my neighbor Abbott wanted me to save him some eggs for his incubator. I charged him only the price I received at the grocery; so he took the liberty of sorting out the best in the lot. He threw out under-sized eggs, crooked eggs, eggs with heavy shells, or those with wrinkles on the shells, and this secured a lot of nice-looking uniform-shaped eggs. There is no question but that such a course will pay. As you say, specific gravity has little or nothing to do with it; and yet the fellows who advertise this machine at a big price have the audacity to put in print that they have never had a magic egg-tester returned. I returned the one they sent me, and wrote it up on these pages.

In regard to the concluding sentence, I very much doubt whether a microscope would distinguish the germ before the egg has commenced incubation. Will somebody who has tested this matter let us know about it? Of course, this would accomplish nothing; but it would upset the claims of some of the swindlers who profess to be able to pick out the fertile eggs before they are put into the incubator. Why not put in as many eggs as you can by standing them on the small end in the incubator, and then throw out the infertiles in three or four days?

DOCTORING CHICKENS.

The following, from such excellent authority, we clip from the *Southern Fancier*:

"Poultry doctor" is not a profession—it is a mistake. There is no need of medical science in the poultry yard. Good methods and good common sense are better medicines than drugs.

Now, in addition to the above I want to give you something clipped from the *Rural New-Yorker*:

When you wish to tell your poultry-raisers how to save money I will tell you how to do it. A useful article, being a disinfectant that can be used in drink to help ward off parasitic disease, is germozone. It is sold at 50 cents for about an eight-ounce bottle. Mistrusting from appearances what it was, I had it analyzed at the Connecticut Agricultural College department of chemistry, and they found it to contain a small quantity of permanganate of potash and a little alum, the rest being ordinary water. All the drugs in it would not be the value of one cent, the other 49 cents being charged for the water and the bottle. The same preparation may be prepared by any one by using one part permanganate of potash to one thousand parts of water (this germozone was somewhat less when used per directions), and a little bit of alum added. It is useful in roup, diarrhoea from germ infection, etc.

Massachusetts.

A. E. C. L.

The germicide mentioned in the above has been advertised for a year or two past in nearly all of our poultry journals. No

doubt it does some good; but just think of it! It costs 50 cts. a bottle, and yet the real medicine contained in it costs *less than one cent.* And this is a fair sample of the

fifty-cent remedies we find advertised in almost all poultry literature. Is it not about time for a revelation or a revolution or something else in the poultry business?

Temperance

PROHIBITION DOES PROHIBIT.

Not only our great railways, but the great banks of our nation, are demanding that their employees shall not enter saloons. The following item, which we take from the *Home and State*, Dallas, Texas, indicates the trend of business:

About two thousand years ago the old Devil himself started on old lie to the effect that a young man could take a drink of whisky or let it alone, and it would not hurt him. The old lie has been repeated all down the ages until many sensible men seem to believe that it can be done.

To answer that old lie, and seeing the necessity for protection against it, not long ago the Fifth Avenue National Bank of New York passed some stringent rules governing their employees, and some of those rules read as follows:

"You must not drink any intoxicants with meals in public restaurants." "You must not enter any saloon." "You must not enter any gambling house." "You must not frequent Broadway resorts or become conspicuous where the great white lights blaze."

The National Bank of Commerce of St. Louis, one of the largest national banks in all the Southwest, having 330 employees, recently passed similar resolutions governing their employees, and the National Bank of Commerce went further and said: "The use of cigarettes will not be tolerated under any circumstances." "Late hours, the habitual use of intoxicating drinks, the frequenting of saloons and questionable resorts, will be deemed sufficient cause for dismissal."

When some twenty sane and sound business men gathered around the directors' table and passed those rules, none of you would look into their faces and say they were a group of prohibition cranks, but on the other hand you would say that they were taking the sensible way of answering that old black lie that a young man can take a drink or let it alone and it will not hurt him; and you will let me add to those rules, and say with all the love and all the force I have, that the old lie that a young man can take a drink of whisky and it will not hurt him is the blackest old slimy lie that was ever told.

I must confess that it is a surprise to me to be told that any city *bank* has as many as 330 employees; and may the Lord be praised for the information that not one of the 330 is *permitted* to use cigarettes.

WHISKY AND BRANDY IN CANDY FOR CHILDREN.

We clip the following from the *Nashville Tennessean and American*:

MAKING WAR ON WHISKY CANDY.

Dr. Lucas P. Brown, State pure food and drug inspector, having discovered that certain candy-makers are putting whiskies and brandies in a special brand of candies which they have put on the market, has inaugurated a vigorous war on the practice, and, despite the fact that the grand jury

of Shelby County threw out the suits brought against these candy-dealers, he says there will be no backward step in the prosecution of the law-breakers.

Upon finding that candy of this kind was being sold in Nashville, Dr. Brown let it be known that such sales were unlawful and would not be tolerated, whereupon the dealers adopted the wise course of refusing to deal longer in such wares. It was enough for the Nashville dealers to be apprised of the fact that such violations of the law would be prosecuted, for they at once advised Dr. Brown that they would not again be guilty of the offense.

"The practice of putting brandy and whisky in candies, thus cultivating a taste for liquor among our little boys and girls," Dr. Brown says, "must stop, and I believe that there is strong public sentiment back of me in this campaign for the stopping of such practices."

I remember hearing some time ago that there was brandied candy on the market, and that children were buying it; but I supposed the business of making and selling such candies had been stopped. Our southern States that have been so vigorous in ruling out the liquor traffic should certainly be wide awake in putting a speedy stop to this sort of business.

ONE HUNDRED THOUSAND DOLLARS CONTRIBUTED BY A SINGLE BREWERY TO FIGHT PROHIBITION.

We clip the following from a recent issue of the *Independent Magazine*:

A lawsuit brings out the extraordinary fact that a single brewery in Worcester, Mass., certainly not one of the largest, has spent \$100,000 in the last ten years in political contributions to fight prohibition. Just as Congress is conducting an investigation on contributions for presidential campaigns, it would be well if every State legislature should order an investigation of the sums contributed to prevent the enactment of laws suppressing the liquor traffic. They must amount to many millions, largely spent in corrupting the electorate.

Things like the above seem to be coming to light almost daily; and yet what are we as a nation doing about it, or are *going* to do about it? What are the churches, the Christian people, and the temperance people doing or going to do about it? Is money, and dirty "tainted" money, going to continue to head off the votes of good men and good *women*?

A GOOD MOTHER—WHAT IS SHE WORTH?

I read *Our Homes* first, then the temperance column. I never drank a glass of liquor in my life nor used tobacco in any form. I thank God for a good mother.

South Westport, Mass., Oct. 23. J. S. WILCOX.

Gleanings in Bee Culture

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Editorial

THE AMERICAN BEE JOURNAL.

WE are pleased to note the evident progress in the growth of the *American Bee Journal*; it is also a pleasure to see an occasional article from the pen of our old friend Geo. W. York, now of Sandpoint, Idaho. Mr. York was editor of the *American Bee Journal*, it will be remembered, for twenty years. While he has since gone into other business, he still retains his interest in bees, and is starting an apiary in a land that gives promise of being a great bee country in the near future.

THE OHIO STATE BEEKEEPERS' CONVENTION.

WE would call attention again to the Ohio State Beekeepers' convention that is to be held in Columbus on the 14th and 15th of January next. Secretary Shaw submits a tentative program which we are pleased to insert right here.

PROGRAM TUESDAY, 2 P. M.

President's Address.

Report of Treasurer.

Report of Secretary.

Result of Apiary Inspection in Hamilton County
Fred W. Muth
With the Apiary Exhibit at County Fairs.....
Glenwood Beard

TUESDAY, 7:30 P. M.

Apiculture at the University.....

Prof. J. S. Hine, Ohio State University

Address—Organization.....E. B. Tyrrell,

Secretary National Beekeepers' Association

Address—C. P. Dadant, Editor *American Bee*

Journal

Live-bee Demonstration.....E. R. Root,

Editor GLEANINGS IN BEE CULTURE.

WEDNESDAY, 9:30 A. M.

Florida Beekeeping.....J. E. Marchant

Queen-rearing.....J. C. Mosgrove

My Experience with European Foul Brood.....

B. J. Holden

Ohio Apiculture—Impressions of a Farmers' In-

stitute Lecturer.....Prof. W. A. Matheny,

Ohio State University

WEDNESDAY, 1 P. M.

A Woman's Way with Bees...Mrs. Jessie Goodrich

Wax Rendering.....H. H. Root

Production of Comb Honey.....A. A. Doenges

Production of Extracted Honey.....H. G. Quirin

Topics for General Discussion

So far as we know, all the speakers assigned have promised to be present or send in papers. The convention will be held at Townsend Hall at the State University. It is expected that there will be from one to two hundred short-course agricultural stu-

dents present at the meetings. This will ensure the largest bee convention the good old Buckeye State has ever had.

A SURE CURE FOR SPRING DWINDLING; HOW THE SCHEME OF POUND AND HALF- POUND PACKAGES OF BEES CAN SOLVE THE PROBLEM OF THE NORTHERN BEEKEEPER.

IN our last issue, on page 752, we mentioned the success we were having in shipping bees by the pound all over the United States with practically no loss. If others can be as successful as we have been (and we see no reason why they can not be after we show them how) it will be possible for one beekeeper in a locality in the South to supply a brother beekeeper in the North with 2-lb., 1-lb., or ½-lb. packages of bees for his weak or dwindling colonies, that he may have on hand, in the spring. Some colonies might need 2 lbs. of bees, others only 1 lb. or ½ lb. The problem has been, however, to find some one who could supply bees in pound packages *early enough* to meet this kind of demand. We have been having considerable correspondence with Mr. A. B. Marchant, of Sumatra, Fla., now temporarily at Appalachicola, covering the question of whether he could supply bees in this way during February, March, and April to those in the North who have spring dwindling. Mr. Marchant thinks he can take care of all who may desire bees in this form as he has an immense stock to draw from. Prices and particulars will be announced later.

If this scheme of sending pound packages of bees from the South to the North can be made a success it will enable the Northern man to save hundreds of valuable queens, and put new strength and vigor into nuclei that would otherwise struggle along all summer without furnishing any surplus. We see no reason why pound packages of *black* bees could not be sent northward at a reduced price. They would be just as good boosters as the more expensive bees.

RIPENING HONEY ARTIFICIALLY; WHY WE DO NOT RECOMMEND IT FOR THE AVERAGE BEEKEEPER.

We call attention to a most excellent article by Mr. Isaac Hopkins, p. 801, of this issue, on this subject. While we believe that the average beekeeper and all beginners should not attempt to ripen artificially, we are convinced that Mr. Hopkins knows how to do it; and there are doubtless other experts who have been able to do so. We hesitate to give countenance to the method because of its tendency to induce carelessness on the part of many extracted-honey producers, in that they will extract before the honey is thoroughly ripened, assuming that the process will be finished in open vats screened from bees. Too many times in this climate the humidity of the atmosphere is such that such exposed honey, so far from evaporating out the excess of water, takes up more of it. It is this condition of atmosphere that is responsible for the poor quality of some of the artificially ripened honey on the market. Such honey when put into cans and barrels causes no end of trouble. The honey ferments, causes a pressure until the cans burst, and the barrels shoot their bungs out like the shot of a gun. The honey then boils over, soiling every thing. In a damp atmosphere bees can ripen their honey while man fails.

When the late Mr. Alexander advocated ripening honey artificially he was roundly scored by honey merchants and beekeepers alike, and we were severely condemned for publishing the matter in the first place.

If all beekeepers were as careful as Mr. Hopkins, and if all of them would use a hydrometer to test the specific gravity of the honey before it is sent to market, there might not be so much objection to the process of artificial ripening. By the way, the hydrometer is something that every extracted-honey producer ought to have; for it transpires that some bee-ripened honey is not as thick as it should be.

GIVING A COLONY HAVING A VIRGIN, EGGS TO HASTEN HER EGG-LAYING.

REFERRING to the discussion on page 796 of this issue between the two Millers, we beg to butt in again—even if we do get smashed between two such heavy weights—especially so as one of the contestants says, “I will turn my attention to E. R. He is sitting as a judge, but I will make him co-defendant.” In the first place, we may say we are of the same opinion still as expressed on page 708, Nov. 15, namely, that we have “never been able to discover that the

giving of eggs and larvæ had any thing to do with hastening the demise of a virgin queen;” also that Mr. Pritchard “makes it a practice to give colonies with virgins young brood.” Notice in the second quotation that we are talking about *colonies* and not *nuclei*. As a matter of fact we do not make it a practice to give nuclei eggs and larvæ to stimulate their virgins to laying. As A. C. Miller points out it would be too expensive, and take too much time. In the second place, we did not abandon our baby nuclei as we had intended. Early in the season we did think (see page 326) that full-size-frame Langstroth nuclei would be better than our twin baby nuclei; but a further and much more prolonged test during this season has convinced Mr. Pritchard that the babies more than hold their own. We did not propose to abandon them (see page 327) as Mr. Miller implies, because of a “loss of queens,” nor because we had to give them eggs, but rather because we thought, all things considered, the larger full-sized nuclei would raise queens just as cheap or cheaper (see page 326). But on this point our Mr. Pritchard changed his mind before the season was over. We have been testing out these baby nuclei in lots of 300 at a time. We tried out 200 of the full-sized Langstroth-frame nuclei alongside of about 300 of the small ones. The little ones showed their superiority in more ways than one.

Yes, Mr. Pritchard is a man who keeps tab on everything he does. He has to or he could not keep up with orders. When we ask him for an opinion on a certain queen-rearing proposition he proves his statement by his records. These records, in connection with raising nearly 3000 queens in a season, were the basis of the statement on page 718, which we quoted above at the head of the editorial.

We may say further that Mr. Pritchard explains that he does not give the baby nuclei eggs or larvæ, for the simple reason that they do not need them. The laying queens just taken out of them he says leave no deficiency of either at the time new virgins are put in to take their place. These larger-sized twin-baby nuclei maintain their strength fairly well throughout the season. It is only the small-sized ones such as Mr. Pratt used that “peter out.”

RETROSPECT FOR THE YEAR 1912.

HARDLY had the new year been launched when most severe winter weather set in. The mercury began to drop, drop, clear down, and beekeepers everywhere were hoping and confidently expecting there would be a let-

up; but there was no let-up—at least for a very long period in most of the Northern States. The severe cold continued clear up into spring; and not until late spring did the beekeepers over the country realize that the winter of 1911 and '12 was the most severe ever experienced since the winter of 1881 and '82. Then, as this year, most colonies managed to pull through to the beginning of spring, but in a weakened condition. When the changeable spring weather came on, spring dwindling of the worst kind did its deadly work, so that the winter of 1911 and '12 and the following spring caused the greatest mortality among bees that has been known for thirty years. It was indeed a severe blow to the industry; but, fortunately for the bees and their owners, the following summer was a good honey year in most localities of the Northern States at least. Bees have a wonderfully recuperative power; and in spite of the fact that two-thirds of them were lost in many localities, and even 75 to 90 per cent in others, they quickly recovered themselves, so that now, as we are about to embark in 1913, we find practically all the bees replaced. Strangely enough, after the severe winter, clovers made a most wonderful growth, and well they might, because the summer of 1912 had an abundance of rain all over the country. Automobile men everywhere kicked about the bad roads, and everybody was complaining of a lack of dependable weather. Contractors were unable to complete their jobs on time. But this *very condition* made a wonderful growth in all the clovers. Unless untoward conditions prevail during the next six months, 1913 will witness the greatest yield of clover that has been known in many a year. There is no question but that 1912 would have produced the greatest crop of Eastern honey known in history had it not been for the fact that the number of bees to gather it was away below the average. But in spite of the few bees, 1912 will record a larger yield of *clover* honey than for many years. Not all parts of the West and South, however, fared as well as the clover belt, so that the total aggregate of honey of all kinds will be only slightly in excess of an average year.

The year 1911 took away such men as Mr. Hutchinson, Heddon, Hilton, Hall, and Herlong—all stars in the apicultural firmament; and 1912 has likewise taken four other stars—John S. Harbison, John G. Corey, both of the western coast, and R. L. Taylor, of Michigan, and S. T. Pettit, of Ontario.

The year 1912 has witnessed the change of

ownership of the *American Bee Journal*; and those of our subscribers who are also readers of that publication will not fail to note its strong and healthy growth. The Dadants are to be congratulated. The *Beekeepers' Review* is now the official organ of the National Beekeepers' Association, with a corps of editors and contributors that should and doubtless will make the *Review* a great help to the organization it fosters. The year has not been marked by any great inventions or methods of management; but there has been a healthy development, showing that the industry is being put more and more on a solid foundation. The don't-care, don't-read-bee-papers type of beekeepers are dropping out. What have not been put out of business by bee diseases have been eliminated by winter losses. In their places have come the enthusiastic amateurs from the agricultural and professional ranks, and also the specialist beekeepers. More and more we see a disposition on the part of many to keep bees on a large scale. Extractors are now being made in much larger sizes than formerly. Power-driven machines are taking the place of those driven by hand; honey-pumps and steam uncapping-knives are demonstrating their superiority over the old ways.

More attention is being given to the marketing of honey. The tendency to drop the production of comb honey entirely has been checked, and now we find more comb-honey producers producing a little extracted, and more extracted-honey producers producing a little comb honey. 'Tis well.

The amount of white clover in the soil all over the United States shows that 1913 is going to deal kindly with us providing we have nothing more than an average winter. As it is seldom that one severe winter follows another, we have every reason to think that 1913 will let us have our bees and our honey.

The year 1912 has seen the publication of a larger number of free bulletins on bees, both State and National, than usual. The Bureau of Entomology, Washington, D. C., for example, has sent out a large number on various phases of the industry. Among the States that have given us complete books on bees, for free distribution, are Massachusetts, Pennsylvania, and Texas, as well as Ontario, Canada. Apicultural schools are growing and developing, both in this country and Canada, so that we now have at least four universities that have complete courses in apiculture, and a score or more that give more or less prominence to bee culture in connection with their general agricultural courses.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

KARL MIKA, *Deutsche Imker*, 321, claims great increase of surplus from keeping bees under glass, as in a greenhouse.

FAIRNESS requires, after having written that Straw, p. 754, about the trouble with too thick glass in shipping cases, that I should report that, since writing it, I've glassed some 400 safety cases without meeting a glass thick enough to ruffle my temper. After the years of struggling I've had, what a delight it was!

GLEANINGS is quoted in *Deutsche Bzcht.*, Oct. 1, as saying the best place to have combs built out is in a super over a strong colony. Dr. Herter approves, emphasizing the strength of the colony, and adding that the colony must be in the humor for building, when it will build just as well before or behind the brood-nest as over it. (This refers to hives with combs running parallel with the entrance.)

EXACTLY how bees gather pollen has been difficult to learn because of the exceedingly rapid movement of the bees. The cinematograph has helped out. Pictures are taken in which the bees can be made to go slow enough to be easily followed.—*Leipzig. Bztg.*, 158. [Time after time we have tried to discover just how bees transfer the pollen masses from one leg to the other. To the ordinary human eye it is nothing short of a sleight-of-hand performance. We are glad to know that the cinematograph is going to show the steps of the process. If it does, GLEANINGS will be glad to illustrate them on its pages.—Ed.]

A TEMPERATURE of 32 to 35 degrees would be considered ideal for outdoor wintering, even if there was no flight for four or five months. Now why shouldn't Elmer Hutchinson's bees stand it just as well in the cellar, *provided the air is just as good*? [We assent to the last sentence; but we have not yet seen the cellar where the ventilation was as good inside as outdoors. With perfect ventilation and a dry atmosphere, bees will undoubtedly stand a lower temperature than where the air is bad, and laden with moisture. Even human beings suffer more severely in a damp and chilly atmosphere than they do in a dry cold air.—Ed.]

ALARM is expressed, *Leipzig. Bztg.*, 150, over a new danger to German beekeeping. In certain localities all the field-bees are lost in a short time. In the same localities poison-sprays are used upon mustard in bloom. [Sometimes these poison sprays are

destructive to bee life, and at other times, apparently, they have no effect. The spraying of fruit-trees when in bloom is undoubtedly destructive to bees sometimes; but it is equally apparent that it is not always destructive. Much depends on the character of the spraying liquid and the strength of it. Ordinary solutions of Paris green, so far as we can ascertain, sufficiently strong to kill the codling moth, will kill brood as well as bees. In the case under consideration it is evident that the poison spray used on mustard in bloom was strong enough to kill bees.—Ed.]

IF ENOUGH beekeepers do not work for comb honey it will not be the fault of GLEANINGS. Many a year ago I gave up the extractor, and have produced sections exclusively. Now, in spite of the exhortations of GLEANINGS I'm planning to run part of my colonies next year for extracted. For one thing, I want to learn how, and am counting on a lot of fun in the learning. [In this connection it is our belief that all comb-honey producers should produce a little extracted. Two extracting-combs in each side of the first comb-honey super put on the hive serve the double purpose of baiting the bees into sections and preventing unfinished sections in the outside rows.—Ed.]

NIKOLAUS PIRPAMER says, *Ill. Monats-blaetter*, 117, that for 30 years he has wintered nearly every year 100 colonies or more, and in that time has fed thousands of kilograms of sugar. Bees wintered well on sugar, but he noticed that colonies heavy with sugar syrup the first of October would be again light two months later, while colonies that had gathered their own stores had not lost perceptibly in weight during the same time. This is a matter worth inquiring into. [This does not seem reasonable, and we should be inclined to believe that there must be a mistake somewhere. We have never observed any thing of that sort in this locality. If any one else in any other locality has, let him speak up. Reports for many years back have shown, on the contrary, that a given amount of sugar syrup will go further than the same amount of natural stores; that is to say, the bees will consume less of them. Some honeys will cause uneasiness; and uneasiness results in a larger consumption of stores. Stores of sugar syrup, on the other hand, are always of uniform quality, and have a tendency to induce the best kind of wintering.—Ed.]

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

INFORMATION ABOUT HIVES.

As the time for buying new supplies for the coming season is at hand, inquiries about the kinds of hives to purchase, with requests for information on the advantage of divisible-brood-chamber hives have become more numerous. In connection with this matter much information is being desired about bulk comb honey and its production, so that the proper hive and super apparatus may be obtained when purchasing the new supplies. After having answered a number of them, others keep coming in; therefore the following information has been "boiled down" to hit each inquirer.

1. I would urge those who do not know what kind of hive to adopt to purchase the regular standard Langstroth ten-frame size, with shallow supers to begin with, trying only one or two divisible hives alongside of these. This is to guard against investing in something you may not find just what you thought you wanted a larger amount of money than is actually necessary to make a small trial. If the divisible hives prove all right, well and good; and if not, there are only a few of them, and they can be used as supers on the L. hives. In either case the L. hives can be more easily disposed of, as these are regular (or standard) goods.

2. The shallow frames, Hoffman style, $5\frac{3}{8}$ inches deep, with $\frac{1}{2}$ -inch top-bars, will have to be especially ordered, or frames with wide thin top-bars will be sent out by the supply dealer. The latter are somewhat weak, and sag in time, especially if grooved for foundation. This groove is not necessary with our method of fastening the foundation with melted beeswax or by any of the other most common methods used here in the South.

3. Foundation of the thin surplus kind is always used in full sheets without wires. Very few beekeepers wire these shallow frames, even for extracted honey. However, a heavier grade of foundation would have to be used if the beekeeper intends to extract from newly built combs unless a little care is exercised in extracting them the first time. After that they are tough enough to stand rougher handling.

4. No wires are ever used in these frames for bulk-comb-honey production, and thin surplus foundation is used. Extra thin is a little too light, and the bees tear it down badly.

5. All of our honey is hauled home from out-apiaries on a spring wagon—some of it for more than 20 miles. It is very seldom

that any of the combs are broken down, and very few even in the hottest summer weather.

6. In answer to the question whether it would ever become necessary or satisfactory to use more than two stories for a brood-nest when one has Carniolan bees, I would say that it is advantageous to provide just as much room as is needed for the best results with any race of bees. I find that my two apiaries of Carniolans require a larger hive, and three shallow stories are used as the main hive and brood-chamber the greater part of the season. All our normal colonies are wintered in three such stories. The upper one furnishes just that much for winter stores, lasting far into the spring, and provides extra breeding room during the spring months. It also provides storing room for the first, scattering honey, and, later, becomes a shallow extracting-super for extracted honey, which is raised up to receive the empty comb-honey super between it and the brood-chamber.

* * *

POISONING WITH ARSENATE OF LEAD.

Since cotton is a very important honey-plant in many of the Southern States, the matter of poison sprays that affect the bees of the neighborhood where spraying is done becomes a serious question for the beekeepers. The following letter illustrates the point:

Dear Friend:—I am writing for information on cotton-spraying. You always speak quite highly of cotton as a honey-plant. I get much honey from that source, but I am much worried since the people are beginning to use arsenate of lead for spraying. Two of my neighbors have lost all their bees from cotton-poisoning. Does arsenate of lead work the same in your district? Would it be better to move my bees back further into the woods? Those who lost their bees were right in the center of large poisoned cotton-fields, while mine were on the edge of the cotton district, a few rods in the woods.

Riveriera, Tex.

J. M. SAXER.

I have given this matter a good deal of attention—perhaps more because I depend almost entirely upon cotton as the chief source of nectar. In other words I would have to give up beekeeping if cotton did not yield honey in my beekeeping territory; and there are many others who will say the same about their localities. The amount of cotton honey produced is much larger than many suppose. We alone harvested about sixty thousand pounds of cotton honey this year, and bought a larger amount. It should be remembered that this was the poorest year we have had.

(Continued to page 803.)

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The bee-lines illustrated by J. Ford Semper, page 618, Oct. 1, are of exceeding interest, and shows that bees know better how to fly from one point to another better than we have supposed.

* * *

Mr. Chadwick is quite right in his recommendation of the use of burlap bags for smoker fuel, page 616, Oct. 1—nothing better. No objection if the burlap is covered with propolis.

* * *

We received a card from a beekeeper a few days ago who had some honey to sell, saying he would have sent us a sample of his honey, but he had a little foul brood among his bees, and did not wish in any way to expose our section to disease. If all were as careful we should have much less foul brood.

* * *

The yield of honey Dr. Miller secured the past season is certainly surprising, and shows the value of sticking to the business through thick and thin, and not neglecting the bees because it looks bad or discouraging. Had he not fed and cared for them until honey came I dare say he would have had a poor season.

* * *

Mr. P. C. Chadwick gives some interesting paragraphs from the Pacific coast; and while conditions are very different there from those on this side of the continent, still the fact remains that the general principles are the same, and it is the man there as here who tends his business, keeping watch as to what it is best to do, and doing his own thinking, who succeeds.

* * *

That editorial, page 503, Aug. 15, on migratory beekeeping was very interesting reading although few of us will be able to try it; but it makes one wish he were young again. To succeed, one will not only need "brains and capital" but a large amount of physical endurance as well. The building-up of a large number of colonies from a few is a trade of itself, and one which, I fear, but few of us fully understand.

* * *

Mr. Chadwick, p. 616, Oct. 1, refers to an item of mine telling how I found a very strong colony in early spring that had wintered in fine condition with a very large entrance, and thinks I have found grounds for a large winter entrance. That is not

exactly the idea. I still prefer a small winter entrance for outdoor wintering; but when I find a case like the one mentioned, where a colony has wintered in the best possible condition under conditions which I do not approve I like to speak of it, that we may all study the subject more carefully and find out the exact truth, which is vastly more important than to brace up my pet theories.

* * *

Louis H. Scholl calls for a good hive number. Say, my friend, I have one that is durable and cheap. It has been in use for more than forty years, and is good yet. Take a little boiled linseed oil and some lampblack. Mix the black with the oil rather thick, and then use with a small brush on stencil figures. I like those two inches high, so I can see them a long way off. Oh! you said you wanted figures that you could put on in a "jiffy," and change from one hive to another in the same space of time. Well, put your numbers on your covers if you want to change them.

* * *

Shipping bees in two or three pound packages, or even in larger packages, without combs or hives, is a new idea as explained on pages 645 and 649, Oct. 15. If it proves a success (as seems probable) it will be a boon to many beekeepers when, after an unusually poor season, their stock of bees is greatly reduced but their supply of combs and hives large. An extra-good season almost invariably follows a very poor one; and if one can get bees reasonably cheap he can stock up at once, and not have to melt combs into wax, and can thus be able to get not only the hives filled with bees, but surplus more than enough to pay for the bees bought.

* * *

I have about come to the conclusion that a beekeeper's education is not quite complete until he has had one or two years away from home inspecting bees. He sees and learns a great many things he has never known before or even dreamed of. A little while ago I found a colony trying to rear two larvæ in the same cell. I counted nine such cells containing each two larvæ about half grown, and they appeared to fill the cell about as full as one full-grown larva. I had supposed that two might often hatch in a cell, but supposed they were always removed when quite young. This colony was quite weak, and the total amount of

brood in the hive small. Whether the bees of this hive were trying to economize their heat and space by rearing two to the cell, or they had overlooked the fact that two had hatched in these cells I was unable to determine.

* * *

Reference is made by Dr. Miller, page 504, Aug. 15, to the dislike of bees for black stockings. Now, I believe it is the almost universal opinion that bees have a natural dislike or prejudice against black; and while it seems certain they can or will become accustomed to black, yet, considering the brevity of bee life and the value of the beekeeper's time, it does not pay to try to educate them against their natural instincts. It is better to adapt ourselves or apparel to their ideas of propriety. In this connection I am reminded that our truckman drives a white horse, and never has any fear of its getting stung when driving it near bees when going to a yard of bees for us for a load of honey.

* * *

Can bees count? Dr. Miller, page 540, Sept. 1, mentions or suggests that bees can or may tell the difference between an eight and a ten spot card. Well, perhaps they may; but I doubt much if they often do. I think I have mentioned before that a few years ago I set the hives of one yard of bees in long rows, and had a great deal of trouble in their getting mixed and losing their own hives, going into unoccupied hives in cool weather and losing their lives. When I saw what the results were I used a paint-brush freely, giving one hive a large splash on the hive front, another two or three or more, and others a circle or bar across the front, but with very unsatisfactory results until I changed the location of the hives, allowing some to enter from one direction, and others from some other point of the compass.

* * *

COLORADO GRADING RULES RATHER STRICT.

I notice on page 610, Oct. 1, a call for more comb honey in proportion to the amount of extracted honey than is now produced. I have been wondering for some time what effect the close grading would have on the production of comb honey. The Colorado rules allow but fifty unsealed cells in their lowest grade, no matter how well the section is otherwise filled. We have been told that all sections below this grade should be marketed near home; but we are not told how to sell two thousand light sections in a town of 200 population or less. Here, for instance, is a section

that weighs 13 ounces, and has 60 unsealed cells. That must be thrown out, although half the cells next to the wood are sealed on one side. Is there no demand in our larger towns for such combs? I believe there is; but if such sections must be thrown out, and the honey extracted and combs melted up, I am not surprised that so many extract their crop of honey. The Eastern grading rules are more liberal—perhaps too much so—as I doubt the wisdom of selling the ordinary size of section that would weigh but eight ounces. However, there may be a demand for such sections in some places. The desirability of nicely filled and capped sections can not be over-estimated; and the suggestion of the use of extracting combs in the outside of supers is certainly a move in the right direction.

* * *

I was much interested in reading P. F. X. Ryan's kindly criticism of Prof. J. H. Lovell's article on flowers, page 654, Oct. 15, until near the close where he asked me to stand up and take my medicine. Humph! I see it does make a difference whose ox is gored. But really, friend Ryan, I believe I used to think exactly as you do, but have come to think somewhat differently in these later years. In fact, I think that the Christ was born, suffered hunger, thirst, and weariness, as we do; that he grew strong by the use of his muscles as we do, and that his mind grew strong by thinking, whether in school or out of school, in the open fields, or studying the social and religious customs of the people among whom he lived, just as our minds grow strong by using them. Of one thing I am sure. He was a wonderful thinker, and he taught those around him to think also, to draw lessons from the birds and flowers and fields. More, he taught them to put first things first, and do as well as to think; and his life may be an inspiration to us in our business as truly as the life of Lincoln or Langstroth. Suppose we draw a lesson from the birds this afternoon. Why does a hen sit on a porcelain egg half the summer? That is easy enough. Because she doesn't think or reason, or she would know she could not hatch a brood of fluffy chicks from porcelain eggs. And why does a man buy an improved frame hive and never open it, but let the bees build the combs crosswise or any way it happens? Or why does he let his bees starve just before the harvest? Why? That seems easy enough too. Because, like a bird, he does not think or reason, or he would conduct his business in a more sensible way.

Beekkeeping in California

P. C. CHADWICK, Redlands, Cal.

Continued from Dec. 1.

After spending a short time at this apiary we rode back to Perris, and then to the northeast to the apiary of E. Gunther. Leaving there we continued until we reached the home of Mr. W. R. Neudorf. Here I found a typical little home lying in a cove made by the abrupt ending of a short canyon—just a few acres, but well protected on all sides by high hills. Oranges, pears, figs, and other fruits were thriving, as well as an apiary of about 200 colonies. Mr. Neudorf had on hand about 20 cases of honey of this season's crop. Here I saw the most complete honey-house I have seen in California. It was a two-story affair with ample room for all purposes. Mr. Neudorf has his bees located on a sloping bench of land above his house, the honey-house being built in the side of the hill—the upper story on a level with the apiary, the lower on a level with other buildings. The honey is wheeled into the upper story, and then extracted, passing through a gravity strainer to an immense tank below. The lower story is concrete throughout, with a concrete base for the honey-tank to rest on at a height just sufficient to admit a 60-lb. can under the faucet. There is also a narrow opening left in the base large enough so that a small oil-stove may be placed under the tank to warm the honey when necessary to make it run freely. Honey can be drawn from the tank at any time as it is entirely enclosed, and is bee and fly proof. I planned to get a picture of this place for GLEANINGS; but owing to extremely cloudy weather I could not.

Here I left Harry for the day. He returned to his home ten miles to the west while I went on through Coyote Pass, and continued for a shorter distance down into the Hemet Valley. I reached the home of my wife's mother about 6 P. M., somewhat tired, after covering 80 miles for the day, but well satisfied with my machine.

The next morning I was up early, and ready for another day's travel. Clouds were hanging far below the summit of Mt. San Jacinto; but "It never rains in California in the summer time." Harry and I were to meet at the Elsinore road at 9 A. M., and visit a number of apiaries on the way down to Elsinore. We met as planned, and were soon at the home of Thos. Chaffin; but no one was at home, so we continued our journey for a few miles. Leaving our machines near the road we walked a mile to the apiary of Mrs. H. R. Youngling, who

is Harry's aunt. Clouds had continued to grow more dense since morning, and it was now beginning to mist and show signs of rain; but "It never rains in the summer in California." By the time we reached our machines it was sprinkling lively, so we journeyed leisurely on down the canyon toward Elsinore, stopping on the way at an apiary owned by a Mr. Farr. We did not tarry long, but began to make haste toward Elsinore; but, alas! we had covered but a short distance when the storm broke in earnest, and a torrential rain began falling. Harry, who was in the lead, took a spill in the creek bed, and I followed quickly. He got a "short" on a cutout switch connecting his engine, and was helpless; but he urged me to go for Elsinore "on the high," saying that he would follow later. I obeyed like a little boy, for water was now running into my shoes. I pulled into the first garage I came to, wet and cold, and waited for Harry, who, in the meantime, had found the source of his trouble. In about twenty minutes he arrived.

Still it rained. We were soaked and chilled, and in sad need of dry clothes. We visited a drygoods store and bought some dry underwear, made our way to the bathhouse, and made the change. Then we went to a restaurant for dinner, which we should have enjoyed immensely save for the fact that the coffee was made with sulphur water, and that the proprietor nearly died with an attack of asthma while we were at the table. Still it rained. For three hours we waited in vain for a clearing sky.

The rain eventually ceased. We were 12 miles from Perris Valley, and Harry was obliged to be home at 6 P. M. The road was there, to be sure, but such a road as it was—mud, mud, mud! We started over the washboard hills back to Perris. How we got there I have never been able fully to understand. I do know this, however. Harry was in the lead all of the time. Worse roads could hardly be imagined for motor cycling. Our machines slipped and skidded, and I was never more tired in my life than when I retired that night. My success as a motorcycle novice in getting over such roads was due largely to the fact that I was riding a very low Excelsior, and my 34 inches of leg length was able to right my machine many a time and prevent a spill.

I spent the night with the Warrs—a pleasant one indeed, and I was much impressed with the practical ideas and devices of both A. T. and his son Harry J.

Conversations with Doolittle

At Borodino, New York.

LIGHT IN BEE-CELLAR, ETC.

"Can bees be wintered in a cellar which is light as well as one which is totally dark?"

"It is generally believed that bees winter best in a perfectly dark cellar; and where the cellar may be either light or dark, choose the dark one. This advice is especially for the novice, or the one just starting in wintering bees in the cellar. But for the experienced apiarist I would say that darkness is not a necessity. Bees have been successfully wintered in the farmer's cellar, where my out-apiary is situated, for over twenty years. In fact, perhaps the bees winter just as well there on an average as here at home in my special bee-cellar where it is so dark that one can not see a piece of perfectly white paper waved within four inches of his eyes. The farmer uses his cellar just the same as he ever did except just the space which the bees occupy. He carries stuff to and from the cellar at any time during the winter. When he is loading his cabbage, potatoes, or any other truck for market, the outside, or what is called the "bulk head" door, is left open for one, two, or three hours as may be required, while the three windows in the cellar walls are left uncovered in winter the same as in summer, so that the family may have light when getting the various things needed for family use. No attention is paid to the light or outside air entering except that I set the hives so that the entrances face the rear wall.

"The bulkhead door spoken of, leading into the cellar, is in the front wall, together with one window; and there is a window in the center of each side wall, but none in the back wall. At first I thought that these windows must be darkened, and that the outside door, if opened up for loading things, must have a blanket hung up in front so that it would keep things as dark as possible, except when passing through the doorway. But the farmer said if that must be required, I would have to winter the bees somewhere else, and so I concluded to try one winter with his using the cellar as he always had done. And that trial has lengthened out to over twenty years. With the hives set close together, with the entrances toward the wall, and as near the rear wall as possible and not have the bottom-boards touch it, the bees are in a sort of semi-darkness; or, in other words, the light does not directly strike them; but from the number dying on the cellar bottom I can see no difference in favor of my

undisturbed, perfectly dark special repository here at home. Another thing, I have never found twenty bees dead about the windows in either wall, which shows that light from these windows does no harm."

"What is the best way to keep the hands clean when working with the bees at times when there is a rush of honey coming in, when it drops from the cells on account of the thinness of the nectar?"

"Wipe the honey off on your pantaloons, of course. Strange that you did not know of this trick. In the infancy of my bee-keeping experience I went to see an old beekeeper of a quarter-century standing in his profession. The time of year was when thin nectar was coming in; and every time he got his hands daubed with this thin honey he would use his trousers for a towel. By the looks, no one would hesitate to say that those trousers would stand alone after he had shed them at night. When I came home I told Mrs. D. that I had found out how to get rid of that disagreeable stickiness I had complained to her about the day before. But she objected to my using this way. So the result was that three or four crocks with water in them were placed at convenient points about the apiary."

"Lastly, are there queen-cells in all well-regulated colonies at all times of the year? I am told to look for queen-cells for indications of swarming; but I find them on the combs in the fall of the year when I am preparing my bees for winter."

"It is supposed by the writers in our bee papers that the readers of these papers have learned at least some of the rudimentary principles of beekeeping by reading one or more of our good bee books which enter into the little details of the pursuit. What you see in the fall on the combs are queen-cups, or embryo queen-cells. These resemble an acorn-cradle or saucer. These are found in every colony after the hives are filled with comb, so far as my experience goes. These cups are not more than one-fourth to three-eighths of an inch deep, and are no sign of swarming. When the bees are preparing for swarming they draw out the edges all around the cradle or add new wax to these edges till you find thin walls half an inch or more deep, at which time an egg is deposited in them by the queen. This is an indication that such a colony intends to swarm unless prevented by the apiarist, or bad weather causing a dearth of nectar. In eight or nine days after the queen lays an egg in these thin-walled queen-cells, the cells are sealed over; and, unless a swarm issues sooner, you may expect the swarm to come out the day after the first queen-cell is sealed."

General Correspondence

MILLER VERSUS MILLER

In Re Virgins' Eggs and Larvæ

BY ARTHUR C. MILLER

So I am a "trouble-maker" according to Dr. Miller (Straws, Nov. 15). Very sorry, doctor, but it isn't my fault. Now listen!

Two to five per cent loss of young queens is about normal, and such loss is partly traceable to toads, spiders, and birds. Anyhow, when not over five per cent are missing, the subject calls for no special notice; but when it goes above five per cent there is something wrong in the system. When it jumps up to forty-seven per cent following the addition of eggs and larvæ to the nuclei from which the queens are mated, it is high time to be taking a look around. And that was your loss, doctor.

You say, "For years it has been considered the proper thing to give young brood to a nucleus with a virgin to make her lay sooner." I don't want my virgins to lay; but, seriously, that quoted sentence gives the clue to the reason for the addition of brood as stated, not always causing the disappearance of the young queen; *i. e.*, she is not a virgin. When she has been there so long that the beekeeper becomes impatient at her not laying, and, to hasten matters, he adds young brood, and then laying occurs soon after, it is a pretty safe guess that the young queen was mated before any brood was added.

My error, doctor, was using the phrase, "almost invariably." That is, perhaps, too strong unless it happily results in stirring others, as it stirred you, to investigate. But deducting from your forty-seven per cent loss the average normal loss of five per cent, we have a loss of forty-two per cent—a loss too high to be tolerated.

You may ask, "If it were due to the addition of eggs and larvæ, why did not the queens disappear from the other nuclei?" To use your own phrase, "I don't know." But I make the following suggestions:

Some of the young queens were perhaps mated, or on their mating flight, or some of the combs added may not have had eggs as well as young larvæ.

Henry Alley, who perhaps raised as many queens in his life as any one has, told me a couple of years before his death that, unless he waited three days after removing a laying queen before running in a virgin, the percentage of young queens "missing" was so great that he could not afford to introduce them before that time had elapsed.

The three days allowed time for all the eggs to hatch.

I said *eggs and young larvæ*, because combs containing only old larvæ and sealed brood may be added without causing the disappearance of the young queens. Not having experimented with comb containing eggs only (for such would be of no help to the nucleus) I can not say what effect they would have.

A strong nucleus does not need strengthening, and a weak one can not properly care for a full sheet of sealed brood; hence it will be found that the experienced beekeeper will select combs containing only a small area of brood, and such combs in the queen-rearing season usually have eggs and larvæ as well as sealed brood. In other words, where young larvæ are present, eggs also are usually present. The presence of eggs and larvæ bespeaks to the bees the presence of a laying queen, and probably it conveys the same information to the virgin, and the normal reaction follows.

Now, if you please, doctor, I will turn my attention to E. R. He is sitting as judge, but I will make him co-defendant.

A man who has to hustle at queen-raising as Mr. Pritchard has to, has not much time for experimenting or keeping careful tabs on all of his operations. E. R. says of him: "Indeed, he makes it a practice to give colonies with virgins young brood." I venture to assert that that treatment is too strong. Treatment of nuclei on that basis is not only unnecessary, but would be so expensive that no queen-breeder could profitably continue it.

Now, doctor, you and Mr. Pritchard and E. R. note this: Some time ago they gave up the baby nuclei in twin mating-boxes, stating that the trouble of maintaining them in normal condition, and the *loss of queens*, was so great that they could not profitably continue them. And baby nuclei have to be frequently strengthened, as you know, and it is usually done (and taught) by adding brood, but *not* "in this locality."

Now, doctor, let us watch them explain, asking them first to make careful experiments on a hundred or so cases.

And if you and E. R. please, I beg to amend my statement from "almost invariably" to this: The addition of eggs and larvæ to the nuclei containing virgins is followed in such a large number of cases by the disappearance of the virgins that the practice should be discouraged.

Providence, R. I., Nov. 26.

[See editorial.]

QUEENLESS COLONIES GATHERING POLLEN

Fermented Comb Honey, and Honey Fed to Bees

BY R. F. HOLTERMANN

On page 705, Nov. 1, appear some items in connection with the above subject. I may not know what I am talking about; but for years this subject of pollen-gathering and queenless colonies has been before me. I have had beekeepers tell me that they knew their colonies were all right because they were all bringing in pollen. If there is any thing in this I should like to be enlightened. I have not yet learned to distinguish queenless colonies by any such method; and, to be quite frank, I never expect to tell a queenless colony in that way. With all the bees I have, and robbing going on at every opportunity in my locality in the fall of the year, I do not examine every colony at that time to make sure it has a laying queen. Next spring, however, unless that spring is an exception to other springs, I expect to find some colonies dead or nearly so, and the evidence of a queenless condition last fall will be pollen-clogged combs, indicating that the bees gathered pollen, and did not have larvæ to feed the pollen to, and that it had, therefore, accumulated in the combs. I find no exception to this. Does this not then prove conclusively that queenless colonies do gather pollen? Of course I do not now refer to a colony so long queenless that the bees are all old and with more than one foot in the grave.

FERMENTED COMB HONEY.

The fermentation of comb honey may result from honey-dew which, before being gathered, had the germs of fermentation in it. I had one experience which I am not anxious to have repeated; and if there are such stores in the brood-chambers, unless the winter is of such a nature that the bees can fly frequently, the bees are likely to contract dysentery.

FEEDING HONEY BACK TO BEES.

In view of the prevalence of foul brood, and since no beekeeper can be absolutely positive that there is no germ of foul brood in his apiary, is it wise to feed honey to bees? I think not. In extracting, the honey from one colony is so mixed with that of many others that it does not take many diseased colonies in an apiary to make all the extracted honey more than dangerous to feed back. I have no personal experience in this direction; but I could name some well-known beekeepers who contaminated almost their entire apiary by feeding back diseased honey when, of course, this

was entirely outside of their expectation and object.

More, the feeding of honey excites bees much more than feeding back syrup, and they are more inclined to rob. Henry Alley, on this latter ground, roundly condemns feeding honey to stimulate nuclei, etc., in queen-rearing. I also venture the opinion that, on account of the added excitement, there will be less of actually ripe stores in the combs when the bees get down to normal from feeding 20 lbs. of stores with honey in them than if they contain sugar syrup, and that with an equal percentage of water in them. Lastly, there are no better winter stores than sugar syrup made from the best granulated sugar and water with a teaspoonful of tartaric acid dissolved in a cupful of water and stirred into the syrup when the latter begins to boil. Why, then, venture honey?

Brantford, Canada.

THE QUALITY OF THE QUEEN

What Assures Success in Beekeeping?

BY MAJOR SHALLARD

If I were asked what assures success in beekeeping I would say the quality of the queen. The queen first, the queen second, the queen third, and every time. Given good queens and bad management, you will get honey; given bad or indifferent queens and good management, you might get honey.

THE HIVES NOT SO IMPORTANT.

In my opinion the shape, make, or condition of the hive, always provided that it is large enough to give the queen and bees sufficient room for breeding and storing, has very little to do with the matter. I have a lot of old unpainted hives in use which have sun-cracked and opened in all directions, and the bees fly out practically anywhere they like. Visitors say, "You need new hives badly."

Well, last season I discarded several hundred of the old fellows, and put in some new painted tight good hives, and the bees in them are not coming on as well this spring as the others in the old ventilated hives. Nearly all of my hives are standing out in the sun, and in summer it is a mighty hot sun. The bees fan at the cracks of the leaky hives, and keep them much cooler than the new hives can be kept. Always remember that all my new hives have tight bottom-boards, as I find them more handy to move about than the loose ones. Going into winter the old leaky hives look bad;

but the first cold snap finds all the leaks closed up tight with propolis.

The spring here is a bad one. We had plenty of rain through the winter, and the first few days of spring opened nice and warm. The bees in the old hives tore down the propolis, and were flying beautifully when suddenly a cold snap came, and I could not help smiling when I saw how quickly the bees fixed all the propolis joints again. Do you see the point? The bees can regulate the ventilation. Mind I am talking about strong colonies. If the bees are weak when going into winter they will require assistance; but with really good queens, and provided you do not strike the Isle-of-Wight disease, or any of his cousins, your bees should not go into winter quarters weak.

Now, what are the objections to leaky hives? The bees fly out at you when at work—that is if they are savage or badly handled. The hives will not stand moving about or else take a lot of packing, and they look unsightly. They are not so easily protected against robbers; but if you have the right breed of queen you need not fear robbers.

The breed of queens comes in again with regard to loose vs. tight bottom-boards. I used the latter up to twelve years ago, then I changed all my hives to the former, and I am now going back to the tight ones again.

The merits claimed for the loose ones were: Easier manipulation; easier to clean; and the hive more easily ventilated. Now, if you have the right kind of queen you will never have a dirty bottom-board; and I think that a colony that will not keep the bottom-board thoroughly clean is no good. My queens are not that good; but they were once, and I am doing my best to get them back to that standard; but I am not having much luck so far.

Now with regard to manipulating. I rarely need to lift the brood-nest and put another under it. Take the Alexander method of increase as an instance. He says, find the queen and put her on one frame of brood in another hive. Well, I don't. I go to the hive, lift all the frames out but one, shake off the bees, fill up the bottom-box with frames of foundation or combs, and put the excluder on. I put the brood into a top box, and put it on over the excluder. Looking up the queen is a lengthy process. My method is not. How would a loose bottom-board help me?

Suppose you find that your queens persist in laying above the brood-nest; then you can change the bottom for the top, and you

can come around later and repeat the process; but you can do a lot better by pinching the queen's head off and getting a better strain; because a good strain of Italians will not lay above the brood-nest. The objection to lifting the brood-nest is that it is full of good worker combs, and the chances are that no other story is *all* worker comb.

To sum up, I say that, with the right kind of queens, the brood-nest need not be interfered with from one year to another.

S. Woodburn, N. S. Wales, Australia.

THE WHITE-FLOWERED GOLDENROD

Solidago Bicolor

BY JAMES S. JOHNSON

This plant is a perennial. It grows from six inches to six feet high. It has from one to twenty hard woody stalks in a bunch. It is known by different names, such as stickweed and farewell weed during the latter part of the summer, but its real name is goldenrod. It is spoken of in the A B C and X Y Z of Bee Culture as being very scarce; but it grows here in abundance. It comes up early in the spring, and grows during the whole season, and begins blooming about the 10th of September, remaining in bloom about two months regardless of the weather conditions. Frost will not kill it. The main stalk begins some distance above the ground to branch out in every direction, and keeps subdividing at every leaf until it comes to a very fine point. Small silverlike flowers are found near the top. The nearest ones to the ground bloom first, and so on up until the topmost one has blossomed.

This plant will grow on any kind of soil, rich or poor, wet or dry, clean or filthy. It grows along country roadsides, in fence-corners, thickets, on stony land that is too rough to cultivate, in meadows and pastures. All of our land seems to be seeded to it. When we fail to plow a piece of land one year, the next season it has a good set of the plants. When it is in full bloom one can not look in any direction without seeing the snowlike flowers.

The seed-receptacles are first filled with a down-like fuzzy substance which is fastened to the very small seed. About the first of November these seeds loosen, and are carried away by some breeze. Many are scattered great distances. Nature has arranged the seeds with this downy fuzz in order that they may be disseminated everywhere.

This plant is not obnoxious. It makes a good early pasture for any domestic ani-

mal. It is as early as red clover, and lasts all summer if not grazed too close. Meadows are mowed before it gets hard, and it makes good hay. It is especially good on land where it is liable to wash. It may be gotten rid of by simply plowing or by being used for grazing purposes.

As a nectar-producing plant its equal is not in this country—not so much on account of the nectar it produces, but coming into bloom so late in the season it causes the bees to breed up, and also supplies winter stores. I sometimes get as much as 50 lbs. of surplus honey from a single colony from this source. A nucleus will also make enough to winter on. It would make you smile to see the golden sheets of honey in my apiary. The honey seems to be good for wintering bees. The honey is of a yellow color, having a good body with a very pleasant flavor. When bees are storing this honey one can detect the odor several rods away.

This plant has not been in this country more than fifteen or twenty years. I can remember well when it came here; but to-day it has a firm hold, and seems to have come to stay.

In the spring of 1911 I had nine colonies of bees—two blacks and seven Italians. The season was good, my bees soon became strong, and I had six swarms. I formed four nuclei. All told, I had fifteen full colonies and four strong nuclei on the first of September. The full colonies had two supers on each one. About Christmas I took one super of honey from each, and left one full super and a full brood-chamber to the bees. Last winter these bees all came through well and were strong in the spring.

On the first day of May, this year, I had my first swarm from fruit-bloom and locust flower. Now, at this point all of these supers had become full of brood, bees, and honey; so I gave each hive another super by lifting the one they had on, and placing the empty one beneath. In a short time these supers were full of honey and brood, while in the mean time they kept swarming until I had saved 37 swarms, and several good swarms had gone to the woods. I then made some increase by the nucleus plan, which made in all 65 full colonies by the middle of July.

The flow of nectar then began to slacken somewhat. Each hive was full of bees, brood, and honey. All of these young colonies were in single-story Danzenbaker hives. They were all rousing colonies; but at this point each bee became a boarder, and by the middle of August 27 colonies had used

up their stores, and were without food. Still these queens kept on laying. I fed these bees until the goldenrod began to yield nectar. To-day all of these colonies have about three frames of honey and about one frame of bees. I should be glad if some one would give a plan for managing such swarms in this locality.

I have had Italian bees for three years. I find that they are more prolific than the blacks. My old hives that had supers of honey left on them are strong in bees.

SOME FACTS ON WINTERING BEES.

I find by experience that several things may figure in successful wintering. To start with, I don't believe that bees ever freeze to death when given proper surroundings. Bees, while clustered, can withstand any amount of cold, other conditions being favorable. I will name some of those conditions:

1. They should be kept dry.
2. They should have an abundance of air.
3. They should have plenty of good stores.

The quantity of bees does not matter so much, but there should be young bees with a young vigorous queen. If a colony is to be kept dry, the hive should be well covered by outside protection from rain, snow, and the like. This can be done in several different ways. A good cheap way for me is to take clapboards about $2\frac{1}{2}$ feet long; nail them to lath at each end; use enough to make a cover about $2\frac{1}{2} \times 2\frac{1}{2}$ ft. square, and lay a brick or stone on top of the hive to give slant to the cover. This will make a good outside cover. Water should never be allowed to fall on the hive, as capillary absorption will take place during snow-melting or rain, and wet the cluster of bees and the packing. This dryness is one of the main essentials.

The amount of air a colony of bees should have is no longer a question with me. In the summer time bees use their wings for this purpose; but bees in their winter nap breathe slowly, like hibernating animals, and need to have plenty of air. Bees should have a larger entrance in winter than in summer. This question ought to have been settled long ago for there has been enough said along this line. I prefer an entrance one inch by 12. This will do, but should be larger.

I want to refer to GLEANINGS for Sept. 1, p. 561. The way Mr. Albin Platz packed his bees seems to be all right to me except that, as he used sealed covers, he should have given his bees a larger entrance. He came very near killing them by suffocation. If air is essential to bees they need all that

nature furnishes. Bees do not need cold, but they need the oxygen that is in cold air. If Mr. Platz will take another hive, like the ones he referred to last winter, and pack as he did, either with sealed covers or absorbents, and give them lots of air, they will winter well. The absorbents he refers to gave his bees more air, hence the better results. A colony of bees with a large entrance, and well protected from outside dampness, will never have any accumulation of moisture on the outside.

Langan, Ky.

LAW ON SELLING HONEY FROM DISEASED APIARY

Feeding Syrup in the Cellar

BY J. D. ROBINSON

1. The Michigan foul-brood law as it stands at present (see Sec. 4 of Article 66 of the Acts of 1901) reads as follows: "If the owner of a diseased apiary, honey, or appliances, shall knowingly or willfully sell, barter, or give away any bees, honey, or appliances, or expose other bees to the danger of said disease * * * said owner shall * * * be liable to a fine of * * * etc." Question. Under such a law what can the beekeepers of Michigan, who have foul brood, do with their honey?

2. This spring we purchased a large number of Danzenbaker supers for plain sections (4 x 5) with fences, etc., complete. Our crop was too small to judge definitely; but from several hundred pounds produced in these sections we anticipate difficulty in getting them full enough to weigh 13½ ounces. Supers would be well filled and capped, but scarcely a section would reach the 13½-ounce mark, and none above that. Now, as the honey in every other respect would fill all the requirements for "Fancy White" under the new Colorado grading rules we should like to ask: (a) What per cent of sections should reach this weight? (b) Is the trouble with the honey (raspberry and clover principally, gathered during dry weather)? (c) Was the trouble possibly with the apparatus or the manipulation? (d) Do others have the same difficulty to complain of?

3. On account of a poor summer and fall flow, some of our colonies had to be fed. The weather turned cool, and much of the syrup fed is not capped. Will this unsealed syrup in the combs spoil? We may say our cellar is dry and well ventilated, which we assume is in favor of keeping stores.

4. In spite of precautions and feeding several colonies, probably a dozen or so

have not to exceed ten or fifteen pounds of stores. Can they be fed syrup in the cellar?

As a note to question one, I might say we are thankful that as yet no foul brood exists in this county.

Pellston, Mich., Nov. 25.

[1. If we are correct, the intent of the law is to prohibit the selling of honey from foul-broody hives to beekeepers to whose bees the disease might be transmitted. We know it has been customary to sell such honey to honey merchants for human consumption, for it is, indeed, as good as any. If such selling is prohibited under the law, it will be difficult to prove violation. If the law does prohibit all selling of honey from infected apiaries it might nearly bankrupt the beekeeper who has 50,000 lbs. of honey to sell. If he boiled it to kill the germs of foul brood he would cut down the selling value of it from a fourth to a third. The reduction in price might represent his actual profit. We do not know of any case in the United States where any beekeeper has been prosecuted for selling honey from an infected apiary to a honey merchant. Any beekeeper to-day who buys any honey to feed his bees is running a great risk unless he knows the exact source of it. Honey that goes into the hands of a commission man or honey merchant is intended for human consumption. If it goes to the baker or confectioner the very process of cocking would render it immune.

2. Sections that do not weigh 13½ ounces would, according to a literal construction of the Colorado grading rules, be barred from the "Fancy" white and No. 1; for these grades clearly call for a section weighing not less than 13½ ounces. A "choice" grade would permit of a 12-ounce section. According to the Eastern rules, the honey described might be sold as "A Fancy." The consignee should then be advised that the grade is according to the Eastern rules. See page 2 of our advertising section. *a.* No section under 13½ ounces is allowed. *b.* The light weight was probably due to a premature shutting-off of the nectar supply. *c.* It may or may not, but probably not. *d.* If the season is fair, no.

3. It is better to have syrup fed early enough to be capped over. In most cases colonies will winter on such syrup, providing, when it is given, it has the consistency of not less than two parts of sugar to one of water. Such unsealed syrup probably will not spoil.

4. We would not advise feeding syrup in the cellar. Give the bees rock candy, or

moist coffee A sugar, such as Mr. A. C. Miller recommends on page 770, Dec. 1.—Ed.]

RIPENING HONEY OUTSIDE THE HIVE

BY I. HOPKINS

We all know how strongly the ripening of honey anywhere but within the hive has been opposed at different times; but to any one who has seriously considered the arguments of its opponents they would have but little value, inasmuch as they have not been based on actual personal experience. I have known of only one beekeeper, and he a New Zealander (Mr. Hobbs), who had tried the system and failed. I do not know any of the particulars of his trial. On the other hand, we have direct evidence from men of integrity who have had long experience in ripening honey outside the hive who favor it in every way—men whose truthfulness their strongest opponents will not doubt; to name only two or three, Moses Quinby and his son-in-law, L. C. Root; E. W. Alexander, and T. W. Cowan. Of the few who attended a meeting of beekeepers at Wellington recently, three had experiences, and advocated ripening honey outside the hive, and a proposition to the contrary by one individual was thrown out. What better evidence could be obtained?

THE SYSTEM NOT NEW.

The ripening of honey outside the hive is by no means new. Part of chapter XI. of "Quinby's New Beekeeping," second edition, 1881, is devoted to it. I have also a paper on the same subject by L. C. Root, read before the New England Beekeepers' Association in 1883, in which he speaks of his 13 years' experience, and states in detail all the advantages to be gained by the system. The following is worthy of note, as it has a bearing on the stock arguments of opponents. He says: "We shall claim, first, as regards the quality of the honey, there is no difference as to the time it is extracted. It may be cured (ripened) equally after as before. The only necessity is that it be cured."

My own commencement on a large scale (ten tons of clover honey) dates back to the season of 1883 and '4, and I have adhered to the system ever since with complete success. The late E. W. Alexander's experience is also very convincing, and I think the testimony of a man of his standing in the bee world may be taken in preference to all theories.

RIPENING HONEY.

Until chemical investigation proves to the contrary, I can only believe that the ripening process, whether performed inside or outside the hive, is the getting rid of the surplus moisture usually found in nectar when first gathered, and which, if retained, would cause fermentation. I hold that the bees have nothing to do with it when ripened within the hives, beyond driving off the moisture as it evaporates from the honey-cells, and capping the latter when the process is complete. I think it quite likely that there is a change going on in the sugars during the course of ripening; and if so I see no reason why the same should not go on under any system. Much has been said by opponents regarding the loss of flavor when honey is ripened outside the hive; but this, I feel certain, is all a myth. I could never detect any difference, neither have I known any one who could. I am aware that Dr. E. F. Phillips, in his valuable paper entitled "The Care of Extracted Honey," has stated that "unripe honeys contain a large proportion of sucrose, or cane sugar, and it is probable that, the longer it remains in the hive, the less sucrose will be found in the honey," and also that "the official honey standard allows of 8 per cent of sucrose in honey." The test of well-ripened honey, therefore, seems to rest a great deal on a small percentage of sucrose content.

In this connection I may quote from the report of Dr. H. W. Wiley (late Chief of Chemical Bureau) on two samples of honey sent by me for analysis to Dr. Phillips. Both samples were portions of crops of honey saved under the system I advocate, in the separate seasons of 1909 and 1910. Extract from Dr. Wiley's report: "Sucrose 0.29 per cent" in one sample, and "0.00 per cent" in the other. Dr. Phillips' remarks on the two samples accompanying the report were: "The water content is very low in both, indicating a well-ripened honey, and the sucrose is extremely low, indicating complete inversion."

THE PROCESS.

The system as originally carried out by me, and which I still follow, is very simple, and similar to that of the late Mr. Alexander and others. Shallow tanks are provided. The dimensions are—length, 6 ft.; width, 4 ft. 6 in.; depth, 1 ft. 10 in. A division runs down the center, and each part holds about 1250 lbs.; or 2500 lbs. in each tank. A honey-gate is fixed in each apartment. With regard to the size of tanks, I would limit only the depth. The other dimensions can be left to the fancy

or convenience of the apiarist. I do not advise a greater depth than 24 inches inside. Mr. Alexander found by experience that his tanks of a depth of 36 inches were too deep, and advised 32 in.; but I prefer the shallower tanks I use as time-savers in the maturing of honey.

When ready for extracting, the full combs are taken from the hives, whether partially capped or uncapped, though I like to see the capping just started on the upper parts; but I am not particular in this respect. The honey runs through three strainers from the extractor by gravitation, each one smaller in the mesh than the one above it. When the extracting is finished a specific-gravity and thermometer test is taken and noted. The extracting-room is well ventilated with sliding ventilators overhead, which can be closed if necessary, and the whole outside house is well sheltered, and gets the sun all day. We have an American stove in the house to heat it if necessary. In a couple of days or so all the fine particles of pollen and wax that went through the strainers have risen to the top and formed a thick scum, which, when skimmed off, leaves the honey clear. It is to facilitate this clearing of the honey, and to hasten the ripening, that I advocate shallow tanks.

A further test is now taken for specific gravity, both on the surface of the honey in the tank and of some drawn off from the lower part. We rarely find any appreciable difference. When we find the specific gravity 1.420 or above, we are satisfied. The honey is fit to put up for market. I am speaking of clover honey, which we raise. It may run up to 1.435 or over—the higher the better. As a rule, in bright warm weather the honey begins to get cloudy in about four days or less, showing signs of granulation. Before running it off for market we mix it thoroughly in the tank with a wooden hoe, and take samples in glass jars to test by times, labeling each sample with date of extracting, and specific gravity. We have some samples from the first extracting, nearly seven years ago; and I have before me now two samples nearly six years old, as good as ever. The specific gravity is registered on the labels 1.420, at a temperature of 60 degrees Fahr.

In warm dry weather the honey ripens very quickly, and takes a little longer in damp weather; but having been successful in all seasons I believe there is practically no risk, providing ordinary care is exercised.

LOCALITY.

"Locality," I often think, is a very convenient word for beekeepers. When one of

them makes an extraordinary success where others have failed, or failed where others have succeeded, they fly to that blessed word "locality," as sufficient to account for all the difference, though in all probability it lies mostly in the difference of management. Though I believe that extreme difference of temperature and rainfall may make some difference in the time that it takes to ripen honey, both within and without the hive, I do not believe, as some assert, that it can be done in the one case and not the other. In this connection I thought it worth while to collect for this article the mean summer temperature and mean rainfall for the different parts of New Zealand, where I have successfully ripened honey outside the hive.

MEAN SUMMER TEMPERATURE, FAHR., IN SHADE.	
Auckland	65.7
Wellington	62.1
Canterbury	60.8
MEAN ANNUAL RAINFALL IN INCHES.	
Auckland, for 58 years...	43.28
Wellington, for 53 years.....	49.91
Canterbury, for 34 years.....	25.34

I think, Mr. Editor, I have now covered all this ground necessary to support my side of the question, but I shall be only too pleased to hear arguments on the other side, provided it is based on experience and their process fully explained.

Before closing I may mention that my reason for bringing the hydrometer into use in testing the specific gravity of honey was to work out some simple scheme by which the average beekeeper might ascertain when his honey was fit to put on the market without risk. I carried out about 150 tests, all of which were with what we could call clover honey, and I concluded with the result given above.

With regard to the advantages of the system I advocate, they are very many; but I must refer my readers to Alexander's writings and L. C. Root's paper for details as this article is already too long. It has been said that I stand alone in this matter in New Zealand; but this is contrary to fact, though that would make no difference to its advantages nor to me.

Auckland, N. Z., Nov. 6.

[We solicited the above article, and are glad to place it before our readers; but at the same time we wish to add a word of caution. As we have mentioned before, there has been a large amount of thin unripe honey thrown on the market—in this country at least. This fact does not prove that honey may not be ripened artificially, but it does show conclusively that the plan of extracting honey from combs not at least two-thirds capped over, and taking no par-

teicular pains to ripen it afterward, is to be deplored. And we wish to say further, that, *in our opinion*, ripening honey artificially is a task for an expert, and one that ordinarily should not be attempted by the average beekeeper. There has been so much unripe honey on the market that we believe it unwise to recommend a cheaper method of producing that *may*, unless great care is used, lower the quality of the product.—Ed.]

BEEKEEPING IN THE SOUTHWEST

Poisoning with Arsenate of Lead

BY L. H. SCHOLL

(Continued from page 791.)

Having had varied experience in cotton spraying and dusting during my position as apiarist and assistant entomologist of this State a number of years ago, I think that serious trouble from the above source can be abated to a great extent. Together with my younger brother, entomologist of the Texas Department of Agriculture, I think we can devise a means by another year that will protect the beekeeper, at least to some extent.

We have found that simply dusting the cotton-plants either with Paris green or London purple does not materially affect the bees. Especially so is this true if the poison is applied by the "sack and pole" method, in which the major portion of the poison drops on the plant and the wide leaves, and very little reaches the nectaries under the bracts of buds and blossoms and the under side of the leaves. At the same time this is the most economical and effective method.

The application of liquid sprays, such as arsenate of lead, requires expensive machinery, heavy hauling of the liquid, and much more labor. While the spray reaches every part of the plants better, which makes it so serious for the bees, this is not necessary, since the poison is needed at the very tops of the plants where the cotton-leaf worms do most damage.

Just what procedure to follow we can not say at the present time; but it seems that, where poisoning becomes necessary, it will be well to educate the people toward dusting their cotton-fields instead of using the more expensive methods of spraying liquid poisons that are disastrous to the beekeepers who may be in the neighborhood. As matters develop, further reports will follow.

New Braunfels, Tex.

[The following letter from our English

correspondent suggests that other causes may account for the death of the bees; but in the above case, at least, the spray used on the cotton-plants seems clearly to blame. See also the statement by R. B. Slease, on next page.—Ed.]

POISONED BEES

Is the Poison Always to Blame for the Trouble?

BY G. W. BULLAMORE

From time to time there appear in GLEANINGS and other journals accounts of heavy losses of bees from the spraying of fruit-blossoms. Although I am quite satisfied that a bee can not drink solutions of sulphate of copper or arsenate of lead with impunity, I do think that this explanation of losses is somewhat overworked. Losses which are similar to these are known to occur when fruit-spraying can not be blamed. In England, spraying with sulphate of copper is sometimes used to check the growth of charlock or wild mustard in cornfields. This action has been freely blamed for some of our heavy losses. Artificial manures, and the dust and fumes from motor cars, have also been mentioned. In the absence of any human agency, Nature is accused. Poisonous nectar and frosted pollen are the agencies which she is supposed to employ.

In an account of the Brazilian bee plague, quoted by Professor Zander, it is stated that some of the beekeepers attribute their losses to nectar gathered from goldenrod. Zander also quotes a letter he received concerning losses in Germany, and in it occurs the following passage: "An old beekeeper thinks that when, in spring, artificial manures containing so much salts are spread on the meadows, there is no more luck. The bees take the salt fluid and perish of it. For four or five years he has had this experience with his best stocks, just like me. Another beekeeper thinks it is an infectious disease in the place."

Heavy losses in New York were attributed by some to the pouring of mineral oil on the marshes in the crusade against mosquitoes; but others preferred to blame the spraying of fruit-trees.

Dzierzon gives the following description of vertigo:

Toward the close of the fruit-bloom, which is a very critical time for bees, Nature appears often to prepare a poison for bees, so that in this district we often find at this time, in the hive and outside, a quantity of bees, mostly young, struggling with death. Whether the bees carry in the poi-

son from the mountain-ash, from the crow-foot, or the apple, which bloom at this time, or whether it is a consequence of some night frosts occurring, has not yet been established.

About fifty years ago English beekeepers were experiencing very heavy losses, and the press of the day contains letters on the subject of poisoned bees. One writer expressed his difficulty in attributing his losses to the malignancy of a neighbor, because he knew of no enemy. In another case the editor suggests that a microscopical identification of the pollen in the baskets of the dying bees might throw some light on the subject.

Berlepsch describes a *disease* of bees which ravaged South Hanover in 1859, and says, "Many hives were one day healthy, the next morning half were dead, and the next day all were dead. The disease appeared in many places about Easter, and in many not till Whitsuntide. It was similar to human cholera, and ravaged whole neighborhoods."

The fact that such losses coincide with the flowering of fruit-trees lends countenance to the view that there is a connection between the spraying and the deaths of the bees. It is, however, difficult to imagine a disease of adult bees in which death following the loss of the power of flight was not the chief symptom. Such a symptom must also arise as the result of bad food, poisoned food, or lack of food, and therefore can have very little diagnostic value.

When a stock loses a large number of adult bees they must either die in the hive, in front of it, or away from it. These differences may be influenced by some factor such as temperature. Yet we find them used to denote three separate troubles, viz., fall honey, paralysis, and spring dwindling. As an alternative explanation we find that fruit-tree spraying is put forward. The latter assertion is seldom accompanied by the evidence that any good analytic chemist could furnish; and until it is usual to obtain such evidence there is grave danger that a serious disease of adult bees will be disseminated by stricken beekeepers who remove the remnants of their apiaries to other localities.

Albury, Herts, England.

EXTREME REPORTS DO HARM

BY R. B. SLEASE

I have noticed what the editor has had to say about taking newspaper reports. Hereafter I think it will also be wise to "use a

little salt" with some reports from beekeepers. I have noticed several very unreasonable reports as to honey crops; also as to the amount of work to take care of bees. Now, out here people generally think a beekeeper has nothing to do but to sit in the shade and sell honey, and that he is just robbing the people by charging 8 1-3 to 15 cents per pound for honey; and it is not much wonder when right in GLEANINGS this year there have been reports of bees making an average per hive of considerably over 100 lbs. of honey in the short space of 10 to 14 days. Then, too, some of our leading beekeepers have made statements to the effect that it takes only two or two and a half hours to take care of a hive of bees a whole year.

Now, such reports as these may be substantiated in a very few places, possibly, but very improbably, and in New Mexico it is impossible. They are misleading, and do the bee business as well as the beekeeper a great injustice. At that rate a man could make a fortune in four or five years, and retire, when in reality he must get up and hustle, and then scarcely more than make a living. I hope in future beekeepers will be a little more careful about such statements; but if they are not, I hope the editors will be.

In answer to H. H. Root's inquiry as to how many beekeepers stack comb-honey supers three high, I will say I use from one to six, but mostly two, three, and four.

Beekeeping is badly demoralized in Pecos Valley, from the heavy loss caused by spraying fruit-trees in bloom last spring.

Roswell, N. Mex., Nov. 6.

WINTER FEEDING AND WINTER FEEDERS

Many Colonies in Danger of Starvation this Winter
Because of the Shortage of Fall Honey

BY OREL L. HERSHISER

There seems to have been almost a complete failure of fall honey throughout the eastern States and eastern Canada for the season just closed. In many of the best buckwheat locations no surplus was secured, and goldenrod and other fall flowers yielded only enough to keep up brood-rearing. As the honey season closed, the bees were found to be badly lacking in the necessary winter stores.

In conversation with numerous beekeepers at the convention of the Ontario Beekeepers' Association at Toronto recently, it was surprising to learn that every one with whom I had talked on the subject had fed heavily. Purchases of sugar by the ton

had been a common occurrence, and one successful beekeeper reported his bill for sugar at about \$600. One expert beekeeper lost several colonies from starvation before he discovered how short of stores they were, and he found it necessary to feed nearly 30 lbs. of syrup to each colony.

Most of the bees that need feeding are fed during the warm weather of fall; but for those who have been so unfortunate as to overlook the matter at an earlier date some simple directions for winter feeding and a description of winter feeders may be helpful.

In some respects, late fall and winter is a better time to feed than earlier in the season. After all breeding has stopped, there is no brood to consume the winter stores; after the bees have settled down for winter no precaution against robbing is necessary; and with no brood in the hives a better estimate of the food required may be made. Moreover, the last food stored will be the first to be consumed by the bees. This last point is especially important in view of the fact that granulated sugar syrup has been found to be superior to the best honey as a winter food for bees. The late fall feeding of granulated sugar syrup places the best of winter stores where they will be consumed during the most trying of the wintering season.

Winter feeding can not be successfully accomplished with any feeder where the bees must move far from the cluster to reach the food. Hence the division-board feeder, or a feeder on the bottom-board, or beneath the hive, or any feeder over the cluster where the bees must traverse a space of several inches to reach the food, will not answer. In cold weather the bees of a strong colony can hardly be induced to go over the edge of a shallow pie-tin to reach the food. The only feeder that answers every requirement for winter use is of the pepper-box-feeder type in which the food is brought right against the cluster. Where it is necessary to feed rapidly and in considerable quantity the ordinary pepper-box feeder is too small; but it is an easy and inexpensive matter to improvise one out of a ten-pound honey-pail or a ten-pound lard-pail which will contain 14 pounds of syrup. All that is necessary to be done is to punch about 100 holes in the lid, each about the size of the lead of a pencil, and evenly distributed over its surface. After the feeding is done the pails may be used for honey, and the only expense of the feeder will be an extra cover—perhaps about two or three cents each.

The feeder, being stocked with the re-

quired amount of syrup, is inverted over the cluster of bees. The feeder should rest on a couple of $\frac{3}{8}$ strips of wood to allow the bees to reach all the holes in the cover of the feeder. It is obvious that the food is brought so near the bees that they scarcely need to break cluster to reach it, and that they store it right where it is available for immediate use. The act of inverting the feeder should be done over the cluster so the escaping drops of syrup will fall on the bees, which will encourage them to commence taking the food. A quilt should cover all portions of the top of the combs and frames. A hole should be made in the quilt directly over the center of the cluster over which the feeder is placed. It is necessary that the feeder rest in a level position. If much out of level, air may find its way through the holes at the highest point and force the syrup out too fast. The syrup should be fed warm. If fed hot, greater care is necessary in leveling the feeder. The bottom-boards of most hives are propolized so they are syrup-tight; and if the hive is tipped back, any syrup that finds its way to the bottom-board will not be wasted, but will be stored by the bees when they become thoroughly roused up by feeding. If the weather is unusually cold when the feeding is done, packing of leaves, chaff, or shavings should be placed over the quilt and over and around the feeder.

Bees may be fed in this manner during their confinement in the cellar as well as out of doors.

The syrup should be made of the best grades of granulated sugar. Use two parts sugar to one part water, by weight. Bring the water to a boil and stir in the sugar, after which bring to a boil again. The addition of a teaspoonful of tartaric acid to fifty pounds* of sugar is said to be effective in preventing granulation. This is very desirable when feeding at any time of the year, and especially when feeding with the pepper-box type of feeder, as granulation would speedily cause the holes in the cover of the feeder to be filled, and render the feeder inoperative.

Fruit-jars may be used for feeders in a manner similar to the feeder above described. Fill the jar with syrup, and secure a piece of cheese-cloth over its mouth by screwing the rim of the jar down over the cloth or by tying the cloth in place with a string. A board of a horizontal dimension that will allow it to be placed within the super or hive body, or in any event over the

* The usual directions call for a teaspoonful of tartaric acid to 20 lbs. of sugar. Perhaps one in 50 is enough.—ED.]

frames of the hive, with a round hole cut therein that will just admit the neck of the jar so that its shoulder will prevent its going further into the hole, is a convenient device to use in feeding with fruit-jars. Several of these holes may be made in the board, and as many jars of syrup be fed at the same time. The board should be raised above the top of the brood-frames by means of cleats on the under side so the cheese-cloth covering of the jars will be separated from the tops of the frames by a space of $\frac{3}{8}$ inch.

It is usually estimated that from 25 to 35 lbs. of stores, depending on the strength of the colony, is an abundance to carry it through from the time bees settle down for winter until they can gather honey in the spring, which is usually not before the middle of May. In winter feeding, some deduction may be made from the total amount of food required for the full wintering season, allowing three or four pounds per month for the time since the consumption of winter stores began. It should be borne in mind that, during the cold weather when breeding is not in progress, bees consume the least stores.

If the above hints are instrumental in saving a few colonies of bees, the writer will be greatly pleased.

Kenmore, N. Y., Dec. 3.

[To this timely article we would add just one word of caution. As a rule, feed in the late afternoon so that the excitement may not cause the bees to fly out when it is too cold.—Ed.]

BEEKEEPING IN JAMAICA

How Bees Fared During Nine Days of Rain

BY F. A. HOOPER.

It may be a little interesting to readers of GLEANINGS to know how bees fared through nine days of torrential rain with a southeasterly wind blowing at the rate of 25 or 30 miles per hour during the whole time it rained.

October went by with very little rain. The rivers were low, and our ponds and tanks were not nearly full enough. I feared another drouth like that which crippled the last honey crop. On Sunday, November 10, there was a grand electrical storm which was seen throughout the island, and the rain came down in torrents. A strong southeasterly wind then set in, bending down the trees in the apiary; and the swaying of the branches knocked several covers off the hives. I then found it necessary to place heavy stones on each hive

to keep the covers from blowing off. On Monday the rain was somewhat heavier, so I thought it best to feed all the colonies in the yard. I then fed over 250 colonies with about 6 lbs. of muscovado sugar to each. I wrapped the sugar in thin paper parcels, then braved the driving rain and wind, and succeeded in getting in a parcel of the sugar. The most difficult task was in taking out two frames from each super to get in the sugar. It took myself and a lad several hours to get through the feeding, all except about a dozen colonies which we were unable to feed, as we were getting cramped from being wet so long. On returning to the honey-house a neighbor advised me to take a "Johnnie Walker" as a precaution against a cold; but as I do not indulge in whisky, a hot cup of our native cocoa answered the purpose.

On Tuesday, the 12th, there was no abating in the rain and wind, and I feared the other three apiaries were being hard hit, so I ventured out and managed to feed two of them, with the exception of about half a dozen colonies in each yard. I will allude to these unfed colonies later.

The fourth apiary, which I look after for my son-in-law, I could not visit until Saturday, the 16th. This apiary is situated near the seacoast, where there are vast tracts of mangrove. This one was not fed, so I lost a good number of colonies. Fortunately the stands in this apiary are two feet six inches high or the bees would have been drowned, for the water was two feet deep in the apiary. I had much trouble in overhauling the bees, standing in water all the time. I found all the colonies dead which were short of honey—about 24 in number. It appears that, when the bees consumed all the honey in the hive, they ate freely of the pollen, which gave them diarrhea, for the bottom-boards were smeared with the pollen, and had an offensive smell. Every bee was dead in those 24 hives, and piled up on the bottom-boards. But in three of the colonies that died I found one solitary bee in each, and that one was the queen.

The weather now getting to be too boisterous to be far away from the home apiary, I made tracks for Clarendon, where the home apiary is situated, taking the 5:15 P. M. train from Old Harbour station. I arrived at 6 P. M. It had not ceased raining in my absence, and the wind was getting stronger. Sunday, the 17th, the wind and rain were just as bad. I glanced at the entrances of all the colonies at the home apiary, and found five had died while I was absent. These were the ones I did not feed.

Continued on page 815.

A NEW WAY OF DEMONSTRATING WITH BEES AT FAIRS

Success in Spite of Misfortune; How One Man has
been Able to Look on the Bright Side, even
though Crippled for Life

BY L. RIEBEL

Just thirty years ago, on the morning of December 15, 1882, I was helping a neighbor move a house. Through a little carelessness on the part of the man who was managing the affair, and having a bad place in the road to get my team across, I slipped, and the building caught my left foot and broke the large bone just above the ankle. I was taken home at once and the doctor called, who visited me every day for over a week. This doctor did not understand his business, however, on account of using too much liquor, as I afterward learned; and my leg, not getting along as

well as it should, had to be amputated on Christmas afternoon. If I had known then what I know now I would not have needed a doctor at all, and that thigh amputation would have been entirely unnecessary. As it was, I have been a cripple all these years, just because of one man's mistake. Doctors generally bury their mistakes, it is said; but it seems that they do not always do so.

About a year after my leg was amputated I placed my order for an artificial limb. The manufacturer of it did not wear one himself, neither did any of his employees; but he had a nice working model with springs and cords; and to hear him tell about it one would think that it only had to be wound up, when it would walk off almost by itself. However, when I got it I was very much disappointed, for I could not use it with any kind of control. It pained me all the time, had no knee action, and

was a dead drag continually. I knew then that I had lost my hard-earned money, and had worse than nothing for it.

I have tried many of the makes of artificial limbs with wooden and leather sockets, but never found any relief. By this time I was becoming skilled in leather-work of all kinds, having taken up the harness business; and as I was a sort of ingenious fellow any way, I commenced over 25 years ago to manufacture a leg of my own that would fill all the requirements. For a year I kept studying and experimenting, and finally hit on the plan of using an air-cushion and other new features until my leg was a complete success.

During my work in the harness-shop I became interested in bees. My father always kept bees in an old-fashioned way, never realizing much out of them, nor giving them the proper



L. Riebel, Chariton, Iowa, with a set of his combs which he uses in his demonstrations at fairs.



A colony of bees in a wooden leg.

care and attention; but I became so interested that I read and studied every thing I could find on bees. I was soon making beekeeping a specialty, along with the manufacture of artificial limbs for others; and I was all the time experimenting and making observations. I had an observatory hive in my work-shop, the bees going in and out through tubes in the wall of the building; and from my work-bench I have watched them building comb, rearing brood, depositing honey, etc. During the last few years I have been giving some attention to the matter of demonstrating beekeeping at fairs; and I conceived the idea of having bees in the hollow part of my artificial leg. The various photographs show how I rig myself up for fairs, and I can tell you that I attract a lot of attention. I also make demonstrations in a wire-cloth cage, and I have a good many different operations that I go through with in order to explain various parts of the business. For instance, I explain how to take a colony out of a tree, get the bees into a hive, etc., so that the whole plan is perfectly clear. I often let the bees sting me on the face all day, and it has practically no effect. I have the

bees on my head, under the hat, in the specially constructed headgear, and then in my artificial leg as shown. I often go about in this way at fairs from six in the morning until nine o'clock in the evening.

Chariton, Ia.

[Mr. Riebel is certainly a genius in more ways than one. He has made such a study of beekeeping that he has published a small book on the subject, "Hints in Bee Culture," which we find is very interesting. We are sure our friend deserves a good deal of credit for forging ahead as he has done for thirty years in spite of so great a handicap.—Ed.]

BEE-VEILS AND BEE-VEILS

BY ARTHUR C. MILLER

A bee-veil is a necessity and a nuisance, only some of them are more so. There are almost as many kinds of bee-veils as there are beekeepers, but often none are to be had when most wanted.

First, there are the kinds made out of sundry yards of white mosquito netting, hung in voluminous folds over a prehistoric



Hiving the swarm in the very novel hive.

straw hat. These are very effective in their way. No self-respecting bee would be seen near one, and no beekeeper can see any thing that he wants to see through one.

Then there are the kinds made of near-black netting, sewed to the rim of a once-was felt hat. Crown and rim form a cone very suggestive of the classical dunce's cap, and one does not wish to meet his best girl when he is arrayed in it. Incidentally, hat and net have a musty, tomb-like odor, and through one's mind there drifts all the stories of the fatalities from stings.

Then there are the dinky little pocket affairs which are too small to go over your hat brim, and which blow softly against the back of your neck, while a few dozen vicious hybrids take the occasion to roost there. Perhaps you have had a few experiences like that, so you buy one of those bird-cages built on to a pretty brass collar, and after you have stretched the net over it you lay it down on a convenient hive top while you light the smoker. When that is well going you hurry into the veil, only to have the brass band, which has been quietly heating up in the sun, raise a lovely red welt on the side of your neck just where it will show nicely above your collar at the reception this evening.

But you will make one of wire cloth, and be rid of all those troubles. After you have dulled your wife's best scissors cutting out the wire, have pricked and scratched yourself with its sharp points, you finally get her to sew it together for you, and to fit into one end a disk of white cloth, and on the other end attach a petticoat to tuck under your collar. There! That is fine! But a glance into the mirror dispels some of the joy, for you look as if you were in a short section of aerated stovepipe. Anyhow, it will keep the bees off. Um, yes, it does, on the off side, but the "nigh side" of it has tipped against your ear, and an alert bee has pierced the lobe, and ear-rings have gone out of fashion for men, except with a few ancient mariners.

Oh! well, make another then. Try a shorter tube, and sew it to the stiff brim of last summer's straw hat. Ah, that is fine. "Is that a swarm 'way up there?" You tip your head back and see—the inside of your straw hat.

Darn a veil, anyhow!

But there are veils and veils, and it is not necessary to make one's self look like a scarecrow or some oger-dispelling monstrosity devised by a superstitious heathen, nor to subject one's self to sundry tortures and annoyances.

Many years ago the writer adopted a type



Bees in wire-cloth hat, neck-tie, and artificial limb.

of veil which was the result of slow evolution, and which has, in its many years of use since, proved itself as satisfactory as any bee veil can; for mere man will never enjoy a veil for a veil's sake. The foundation, which is at the top, is a duck "beach hat," white or brown. Theoretically, white is cooler, but brown—"kahki color"—does not show the dirt so easily. To the rim of this is sewed a strip of wire cloth, and depending from the lower edge of this is an ample skirt of brown cambrie or silesia. This sort of cotton cloth is used in preference to the commoner and more fuzzy kinds, as bees do not catch their toes in it and trip and fall and lose their temper. But the wire cloth part of the hat is really the "whole thing"—at least it may seem so until you try to use some other sort of hat as a foundation, or some other sort of cloth for the skirt.

First, buy your hat—it is better to buy it than to borrow it or steal it, and of course



Arthur C. Miller's bee-veil.

no good beekeeper steals—he leaves that for his bees to do for him. When you go to get the hat, have your hair cut afterward, not before, or else be sure you get one—a hat, not a hair—which is plenty big enough, for duck hats will shrink, particularly after they have been left out in the rain and dew for a season or two. While you are waiting for it to shrink to just the right point, you have a piece of felt, cloth, or folded strip of paper in behind the sweat-band, and later remove this when you get the swelled head or the hat shrinks.

Take the hat home, and also take a strip of wire cloth long enough to go away around the hat-brim and two or three inches more. If your credit at the store is good, get the "bronze" or "copper" wire cloth. It is better than the painted in several ways. When new it glistens and bothers the eye a little, but soon dulls down, especially after you have left it out in the dew a few times.

Having the wire cloth, cut it like this:



The narrow ends are about three inches wide. For a distance of about eight inches in the middle it is eight inches wide. Now

the edges are to be hemmed—that is, have a narrow strip, say a quarter of an inch, folded over and flattened. Preferably the long straight edge should be the selvedge, and not hemmed. To fold the hem readily, clamp the edge between two sticks, as laths, and bend to right angles, then bend the rest of the way with the fingers, and hammer flat. Or, better still, stop in the tin-shop and let the tinsmith do it in his sheet-metal folder.

Now if you want the rest of the work well done, get your wife to do it, unless perhaps your good mother taught you how to use a sewing-machine.

To the bottom edge of the wire cloth—that with the double slope—sew an amply full and long skirt of brown cambric, letting its folded edge cover the points of the turned-over part of the wire cloth. A double row of stitching, one above and one below the points, and having this on the inside when it is attached to the hat, will give a neat appearance and a smooth finish.

To attach the wire to the hat is easy if begun properly. Start in the middle of the straight edge, and put this spot at the middle of the front of the hat-brim. Stitch around to one end, then go back to the middle and stitch around to the other. The ends will lap a little, and fastening these down is more easily done by hand.

Use the stiffest needle possible, and for thread use strong linen or silk, and preferably use a double row of stitching.

A hat thus made sits comfortably on the head, stays in place, permits freedom of movement, and allows a free circulation of air. Made as described, it is durable and looks as well as such things can.

But—you will have a more pleasant time if you keep decent, good-natured bees, and dispense with a veil altogether, or almost.

Providence, R. I.

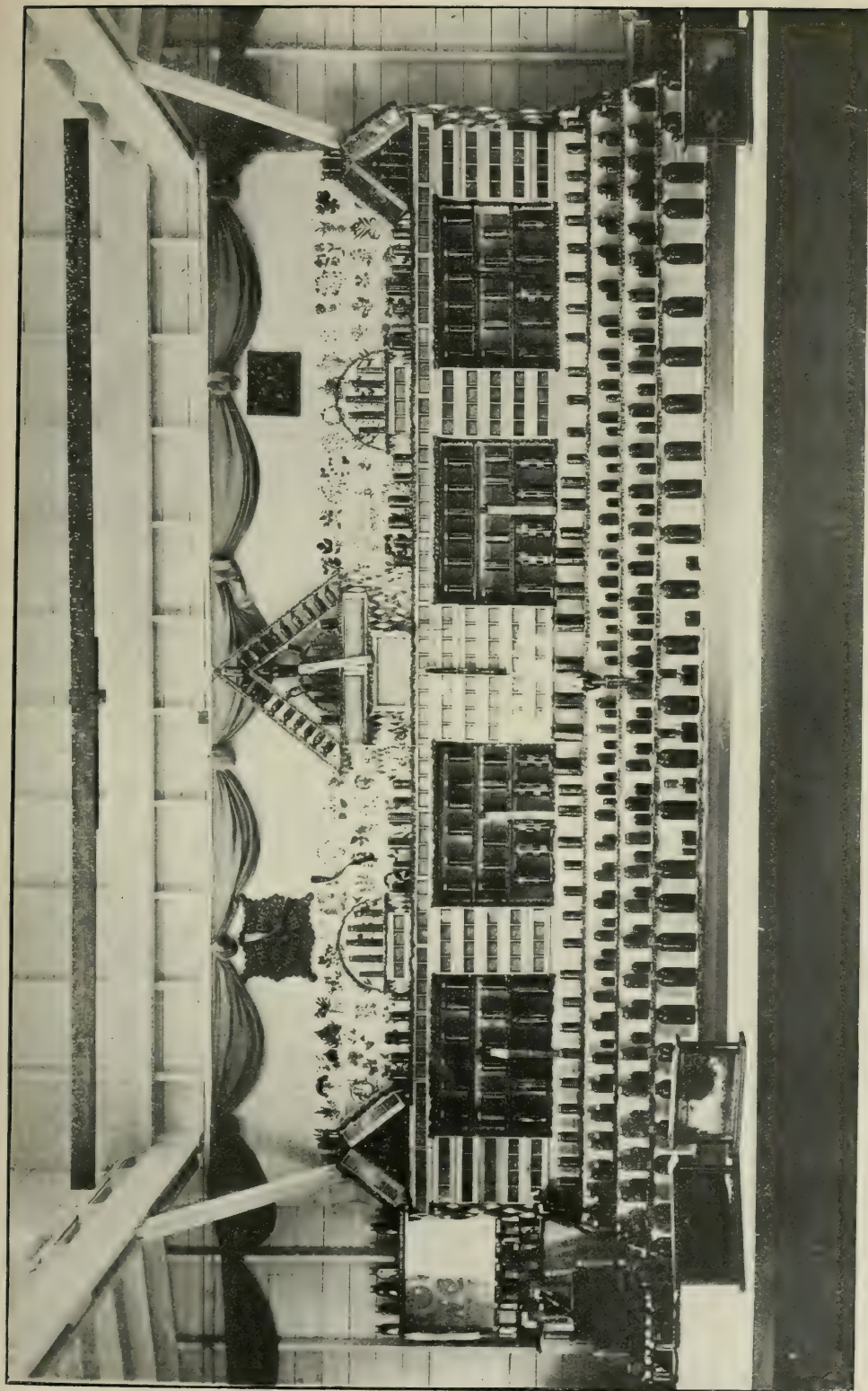
THE SPOKANE INTERSTATE FAIR

I am sending you two photographs of exhibits, and a list of awards in the apiary section at the Spokane Interstate Fair.

CHESTER L. MYERS, *Publicity Manager.*

CLASS 1.—HONEY.

- Lot 1. Display of comb honey—
 - 1st prize, \$10, Robert Cissna, North Yakima.
 - 2d prize, \$5, Mrs. M. E. Baker, Spokane.
- Lot 2. Display of extracted honey—
 - 1st prize, \$10, Robert Cissna.
 - 2d prize, \$5, J. A. Yeoman, Spokane.
- Lot 3. Specimen of white comb honey—
 - 1st prize, \$5, Robert Cissna.
 - 2d prize, \$2.50, J. P. Kingsland, Spokane.
- Lot 4. Specimen of amber comb honey—
 - 1st prize, \$5, R. Cissna.
 - 2d prize, \$2.50, Mrs. Baker.



One of the honey exhibits in the aparian section of the Spokane Interstate Fair.



Another exhibit in another part of the section.

- Lot 5. Exhibit of comb honey in an extracting-frame—
 1st prize, \$5, R. Cissna.
 2d prize, \$2.50, J. P. Kingsland.
- Lot 6. Specimen of extracted honey—
 1st prize, \$5, J. A. Yeoman.
 2d prize, \$2.50, R. Cissna.
- Lot 7. Specimen of beeswax (10 lbs. or more)—
 1st prize, \$5, R. Cissna.
 2d prize, \$2.50, J. P. Kingsland.
- Lot 8. Design in beeswax—
 1st prize, \$5, Mrs. F. T. Dodge, Kiesling.
 2d prize, \$2.50, Miss Fanny Breik, Spokane.
- CLASS 2.—BEES.
- Lot 9. Single-comb nucleus golden Italian bees—
 1st prize, \$8, J. P. Kingsland.
 2d prize, \$4, Mrs. Bolser.
- Lot 10. Single-comb nucleus dark Italian bees—
 1st prize, \$8, J. P. Kingsland.
 2d prize, \$4, R. Cissna.
- Lot 11. Single-comb nucleus black bees—
 1st prize, \$8, J. P. Kingsland.
 2d prize, \$4, Mrs. Baker.
- Lot 12. Single-comb nucleus Carniolan bees—
 1st prize, \$8, J. P. Kingsland.
 2d prize, \$4, Mrs. Baker.
- Lot 13. Single-comb nucleus Caucasian bees—
 1st prize, \$8, Mrs. Baker.
 2d prize, \$4, J. P. Kingsland.
- Lot 14.—Greatest variety bees displayed in single-comb nuclei—
 1st prize, \$10, J. P. Kingsland.
 2d prize, \$5, Mrs. Baker.
- Lot 15. Most attractive display of bees in observation hive—
 1st prize, \$10, J. P. Kingsland.
 2d prize, \$5, Mrs. Baker.

SPECIAL PREMIUMS.

- Most instructive exhibit—one select tested Italian queen, Root's Red-clover strain, value \$4.00, J. P. Kingsland.
- Winner of class 3, lot 1, 250 Root's "A" grade section honey-boxes, Robt. Cissna.
- Winner of class 1, lot 2, 100 Root's self-spacing brood-frames, value \$3.00, Robt. Cissna.

Winner of class 2, lot 14, one pound each of Root's comb foundation, value \$2.50, J. P. Kingsland.

Winner of class 1, lot 3, copy "Advanced Bee Culture" for expert beekeepers, published by A. I. Root Co., value \$1.00, Robt. Cissna.

Winner of class 1, lot 7, copy "A B C of Bee Culture," leading text book on beekeeping, 576 pages, and several hundred illustrations; value, \$1.50, Robt. Cissna.

Winner of class 1, lot 6, one standard Root bee-smoker, value 85 cts., J. A. Yeoman.

Winner of class 1, lot 5, *Gleanings in Bee Culture*, full year's subscription, \$1.00, Robt. Cissna.

Best exhibit by lady beekeeper, copy "How to Keep Bees," by Anna Botsford Comstock, value \$1.00, Mrs. Baker.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Some Unusual Locations for Apiaries

BY J. E. CRANE

Continued from page 766, Dec. 1.

I wish I had kept track of the number of different styles of hives I have found in my work. Some were large, holding two or three bushels, and some small; some with large entrances, some with small; some with porticos, and others without; some with frames, many without. It had been so long since I had seen bees in box hives that I did not know that any one used them; but after finding large yards with no other kinds I began to think I didn't know all about beekeeping, especially when I found the bees in box hives in decidedly better condition as a rule, in the spring, than those in frame hives. One man asked me

in regard to changing from box to frame or patent hives, as he called them. "Don't, don't," I said, "unless you are going to use the frames, for of what earthly use are frames in a hive unless they are used by the beekeeper? They cost more, and are not as good. Of course, if you use them they can be made of great value, and for the suppression of disease they are useful."

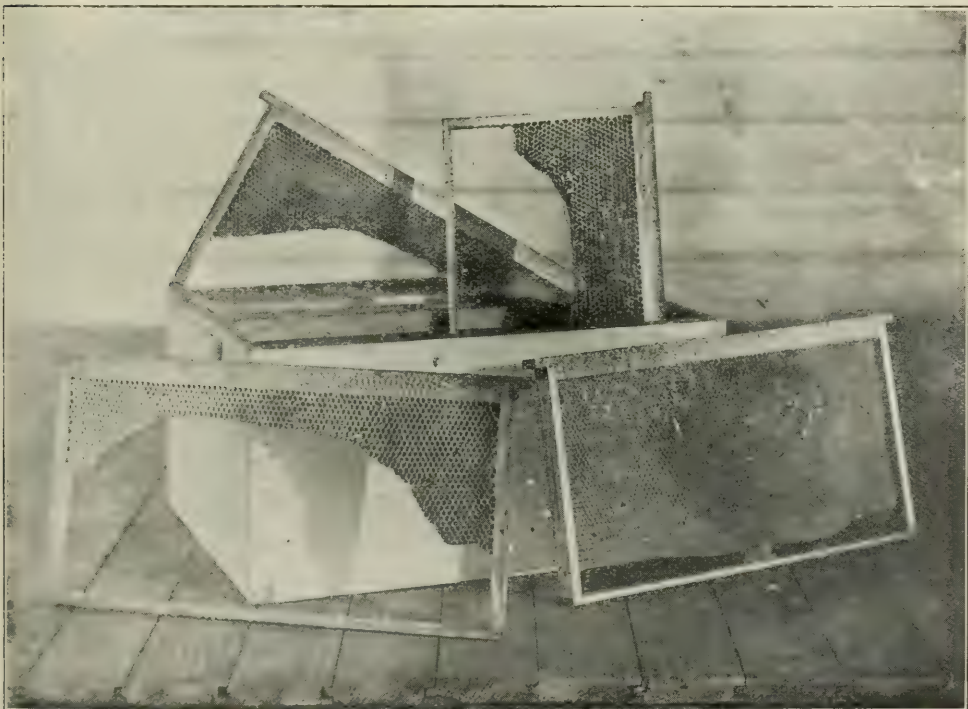
I found one yard full of great clumsy box hives, made of coarse lumber, but every hive was blessed with a portico, Langstroth style, tacked to the front of it. The idea seemed to be that bees, in order to do well, must have a nice place to lounge, just as a man, to be quite happy, must be able to sit on a hotel piazza and smoke.

I find that many beekeepers fail to get much surplus because of lack of a large enough passageway from the brood-chamber into the supers. I remember seeing one hive with one small hole from the brood-box into each box placed on top. Unless bees have a larger opening it is almost impossible to ventilate such a receptacle or to allow the bees to pass through freely enough to store much honey. Such beekeepers are "right smart backward in getting ahead," as some one has said.

I have found some apiaries located near the house, others down in the meadow ten

or fifteen rods away; sometimes in bushes, or among weeds so thick I had to hunt for the hives. In one yard we had to climb through a hen-house window in order to reach some of the hives. Some are on beautiful lawns, in gardens, or orchards, and others on side hills. One such was so steep that I fell three or four times in trying to get up to it, and had to get behind the hives to keep from falling off. I was rewarded, however, for I found a new style of honey-box I had never seen before. Two quart fruit-boxes were tied together, a hole cut in the bottom of one and then placed over a corresponding hole over the brood-chamber. The proprietor said they worked well. I did not dispute him, for I had never tried them.

Another apiary was located on a side hill less steep, and was very pretty. The owner, in addition to being a beekeeper, was a taxidermist. A room in his home was as good as a museum, containing a large number of species of birds and animals. I was especially interested in a crow that was of a light chestnut color instead of black. As I was looking around I turned suddenly, and for the first time saw a large bear, looking so lifelike that I started away from him as though he was about to hug me.



Combs having the diseased portion cut out. See article by E. D. Townsend in the last issue, page 760.



Surplus compartment for honey, made of berry-boxes

Some hotels are not all they ought to be; but I suspect that, as a rule, they are conducted as well as some apiaries I know of. Still, there are some hotels run in connection with a liquor-saloon that are "away off," and I should like to give them a little piece of my mind. The proprietor of one asked me, as he showed me to my room, how I was pleased with his house. I could not help telling him that it would have suited me better if there had been less profanity.

In another town there was only one hotel, and this was little better than the covering for a saloon, and well-nigh bare of furniture. I left my bag, and went down street to see if I could find a restaurant where I could get a light supper, but was informed there was no restaurant in the town. I protested in one of the stores against such a hotel in a town of that size, but was told they served splendid meals.

I had noticed some people gathering near a church, and went over there and found that a church supper was being served by well-dressed people. I had a sumptuous supper for a very moderate price. During the night my bed came near falling to pieces; but I got a fair night's rest, and was ready in the morning for that splendid meal I had been assured of at the store. Breakfast was announced; and after waiting some time at a table a rather coarse young man came to me with some kind of cereal, and blurted out, "Do you ever eat such stuff as this?" The rest of the meal was after the same style.

WRITING ARTICLES FOR LOCAL PAPERS.

I have found it helpful to give a few facts to the local press, where there is a lack of interest on the part of beekeepers regarding foul brood, for it has seemed almost useless to try to control this disease unless the inspector has the hearty co-operation of the beekeepers themselves. Most country editors, and even city editors, are glad to get such items. I have also had a lot of red cards printed with these words: "Contagious Disease! It is unlawful to sell or give away the contents of this hive."

A CASE WHERE THE DISEASE DID NOT SPREAD.

In a former article I spoke of centers of infection of foul brood. One such has puzzled me somewhat. In a city of about 20,000 population, where in one yard this disease was found last year, I did not find a single colony alive; but instead I was told by the superintendent that the moths had destroyed them all. I have looked over all the yards of bees near this one, and have failed to find a trace of disease. It would seem that the disease broke out in this yard and ran its course without spreading, and died where it began. "How did it start?" I have asked myself many times, and have decided that bottled honey was bought by grocers from our larger cities (such honey containing the germs of foul brood). Some of this honey was in turn bought from a grocer, and all that could readily be removed was consumed, after which a bottle without being washed was thrown upon the dump, and a single bee might have gathered enough at a single load to start a colony on the road to ruin.

In another center of foul brood, where it was abundant a few years ago, I found it had entirely disappeared, and farmers were keeping bees without trouble. But I said to myself, "If I throw a stone into a pond



C. A. McCarty's ducks, Walla Walla, Wash.

of water the ripples will keep going till they reach the shore." I traveled to the south without finding any thing, and then to the west for several miles without success; but when rounding a high mountain I came upon it.

Middlebury, Vt.

To be continued.

FEEDING DAMPENED LOAF SUGAR

If a colony of bees is light in stores and likely to starve, would it do any good to place a pile of loaf sugar on the frames over the cluster, and cover with quilt?

Gate City, Va., Nov. 29.

H. P. GROGAN.

[Mr. Alexander fed loaf sugar in large quantities, and with very good results. His plan was as follows: "Make some rims two inches deep, and the size of your hive on top; then take off whatever covering you have over the tops of the frames of the comb, and put on one of these rims. Fill this rim with cut-loaf sugar, the kind that is in cubes about one inch square. Moisten this sugar by sprinkling a very little warm water on it; then cover the sugar with cloth mats so as to retain all the heat from the bees below you can, and the bees will soon come up into this rim of sugar, every one that can, and cluster in it and eat it as they require until spring. I have fed a good many colonies in this way, and never lost one. They usually come through the winter in fine condition, even though they had only two or three pounds of honey in their hives in the fall. One winter I fed two barrels of sugar in this way with good results."

For some reason or other there has been some difficulty connected with the use of this loaf sugar by other beekeepers—perhaps because it was not sufficiently moistened, or possibly because it was not placed in a two-inch rim as advised by Mr. Alexander. Making the hard candy with granulated sugar is not at all difficult after the knack has once been learned; but it is true that considerable care must be used to get it just right. If loaf sugar can take the place of it as recommended by Mr. Alexander it would be a help all around.—Ed.]

BEEKEEPING IN JAMAICA

BY F. A. HOOPER

Continued from page 806.

It appears they ran out of stores and had to resort to pollen, which killed every bee in the hive; for in these there was also the offensive smell, and the bottom-boards smeared with pollen. In one of these five

colonies that died I found the queen alive.

It rained heavily all day, and the strong wind drove the rain into every crack and crevice. The bees ere this had deserted the supers and clustered over the sealed brood; all the unsealed brood was now thrown out; and in colonies which faced the driving wind and rain the bees could not venture to throw the larvæ outside, so they lay on the bottom-boards. The super combs were now getting moldy from the damp, and I feared the worst.

Monday, the 18th, dawned with the same driving rain; but the wind was lighter. It was now blowing from the southwest with great black clouds scurrying across the sky. One could now easily see a change had taken place in the weather during Sunday night. A great hurricane was devastating the western portion of the island, causing absolute destruction to cultivation, and destroying several small towns. The number of unfortunate victims who perished in this disaster was about forty.

On Tuesday, the 19th, the sun shone out brightly. A few bees ventured out of each hive, and, after flying about for a little, they returned to their respective hives. I suppose they soon discovered that there was no work for them to do that day, as every tree was stripped of the flowers they had on.

I then visited the two other apiaries which I fed when the rain set in. In one I found four colonies had died, and one in the other. The bees died of the same complaint, as above mentioned.

On the whole I do not think beekeepers have lost much, except those in the western part of the island. The much-needed rain, although a quarter which fell would have answered, will do a world of good; and the loss of a few colonies of bees will not be felt.

Before closing this article I may say that the broomweed bloomed profusely during the months of September and October. This plant yields an abundance of pollen, but little or no honey; hence the colonies were well stocked with pollen, but with very few stores before the heavy rains set in.

Four Paths, Clarendon, Jamaica, B. W. I.

Duck Eggs in an Incubator

I saw in GLEANINGS for Feb. 15 that you were having trouble with your baby ducks (in the incubator) dying in the shell. My wife manages her ducks this way. She takes her tray out and sprinkles the eggs with warm water on the 14th day, and every day from then on till they hatch. You know an old duck goes to the water every day when she is sitting, and comes back to the nest quite damp. We used a hot-water incubator.

I raised 12,000 lbs. of extracted honey last year from 100 colonies.

Walla Walla, Wash., March 3.

C. A. MCCARTY.

Heads of Grain from Different Fields

Cut-loaf Sugar for Winter Feeding

Our people here have so good a bee-range they scarcely ever have to feed the bees for winter stores, and two winters I found quite a number of colonies nearly starved out, and I fed them with cut-loaf sugar over the brood-nest. Each winter I lost three and four colonies thus fed, but I suppose they were too weak to profit by feeding, as the others pulled through nicely. It is a nice clean way to feed.

This winter our whole yard is weak, and short of stores, owing to a bad season.

Now, I wish to unite weak colonies to get enough bees. Will you please tell me what you think of the feed—your experience, if any, and of the others who may have tried out the plan?

Letohatchee, Ala., Nov. 11. W. N. RANDOLPH.

[Cut-loaf sugar is not as good a feed as lump hard candy—candy that is recommended in the A B C and X Y Z of Bee Culture, under the head of "Candy." Mr. Arthur C. Miller speaks of a new coffee A sugar, which, he says, makes an excellent bee feed given to the bees direct. It has some of the characteristics of brown sugar; is a very pale yellow; and, when squeezed between the fingers, will hold its shape. We have never tried it, but would suppose it would make an excellent feed. We should be afraid that, under some conditions, the cut-loaf sugar would be too dry to make a satisfactory winter food, and we would, therefore, recommend either the candy or the coffee A sugar, referred to by Mr. Miller on page 770, of our Dec. 1st issue.

With regard to uniting, this can usually be practiced after colder weather has set in. When the bees can fly every day and go to the fields it is not practicable to unite. After colder weather sets in, when the bees will be shut in the hives for a week or ten days at a time, they may then be united; but their old location should be changed as much as possible to prevent the bees from going back.—ED.]

Questions on Tiering Up

1. How do we know when the bees are once well started so that we can raise the extracting-super and put under it a comb-honey super?

2. What is a good sign by which to discover the evident decrease of the supply of nectar?

3. Can the sections be called well ripened if left in the super indefinitely with a bee-escape board under it?

4. Is there any danger of moth eggs if sections of comb honey are kept in a case for several weeks?

5. If propolis accumulates in a hive-body, is its cleaning-up urged? If so, how about the bees and frames in it? Isn't it a good plan to clean the hives up during a favorable weather after the close of the honey-flow, if there is plenty of propolis in them?

Chicago Junction, O. LEON P. JONES.

[1. When new honey appears in the extracting-combs and the work of capping the cells has just commenced, it would be proper to place the comb-honey super underneath.

2. You can detect a decrease in the honey-flow by watching the bees themselves; although the most accurate way, if you wish to go to the trouble, is to have a hive on scales.

3. It would depend upon the weather as to whether comb honey would deteriorate over a bee-escape on a hive of bees. During a long rainy spell we should be afraid that the honey would absorb moisture and become somewhat thin.

4. If the comb honey in question had been produced over a colony of black bees there might be some danger of the larvæ of wax-moth. If the colonies were strong and vigorous there would not be as

much danger, although blacks do not protect their hives as well as the Italians.

5. There is little need of propolis except to close up cracks that would let in the cold. When it accumulates to such an extent as to interfere with the handling of frames, or lodges in the hive rabbets, it should be cleaned away.—ED.]

Annual Meeting of Ontario Beekeepers' Association

It was said that the annual convention of the Ontario Beekeepers' Association for 1911 broke all records for attendance; but the 1912 convention, held in Toronto last week, was more largely attended by far than last year. It is reported that 250 beekeepers were in attendance at the various sessions, the crowd at each session being about 125. Papers and discussions were very businesslike and to the point. The following officers were elected for 1913: President, Dennis Nolan, Newton Robinson; First Vice-president, J. L. Byer, Mount Joy; Second Vice-president, Miss Ethel Robson, Ilderton; Secretary-treasurer, Morley Pettit, Ontario Agricultural College, Guelph.

The next event of provincial interest to beekeepers in Ontario is the Apiculture Short Course to be held at the Ontario Agricultural College, Guelph, January 7 to 18, 1913. These two weeks will be filled just as full as possible of practical information for beginners, and advanced beekeepers as well. For particulars and copy of program address

MORLEY PETTIT, Provincial Apiarist, Guelph, Ont.

Sweet Clover for Hay in Kansas

To-day I was shown your pamphlet, "The Truth about Sweet Clover," and read a few of the statements of various ones. This was issued in 1910.

I have been feeding sweet clover to stock for about five years; and my experience has been that it is as good as alfalfa hay. I have read where it contains just a little less protein in it than alfalfa. I find it will not bloat cattle, and that it makes an earlier pasture as well as a later; that it stands dry weather and freezing weather better than alfalfa. It is my experience, too, that it is about the cheapest and best-known fertilizer for worn-out or stale ground.

Two years ago I sowed 130 acres right on the prairie and salt grass without doing another thing, and raised two good crops of hay off from the same last year, and this year I got a crop of hay and thrashed out 900 bushels of seed, for which I am offered \$8.00 per bushel of 60-lbs., white sack thrown in. I am offering the same at \$10.00 in any quantity or for all. I am sowing now 100 acres more, right on the same kind of ground, and will do nothing further than sow it to the ground. I believe it is the coming crop; and where you let it go to seed there will be enough shatter off to keep resowing the field so that it will be perpetual.

Garden City, Kan., Nov. 11. E. G. FINNUF.

Uniform Cage for Mailing Bees Wanted

Referring to the editorial in the October 15th issue concerning shipping bees by parcels post, I will say that some one will surely send bees in a poorly constructed cage that will make trouble later, so that bees will be barred from the mails. This is almost sure to happen unless the right precautions are taken to start with. Why not have a discussion by those who have had experience in mailing bees, and a good strong cage adopted that all must use?

We do not want bees kicked out of the mails, especially those of us who live in this semi-arid district where occasionally we lose every thing from pollen and honey dearth. We want to get better

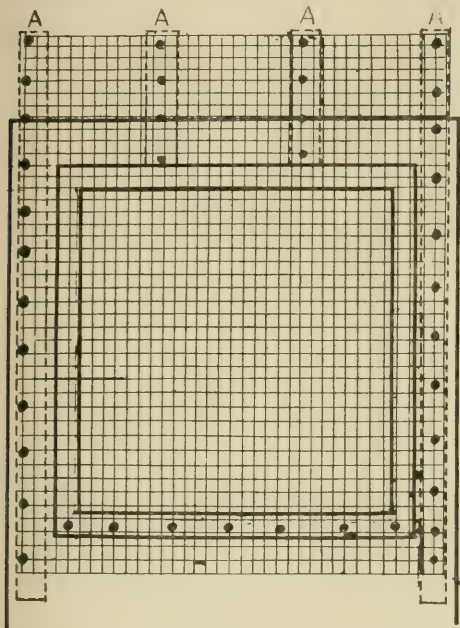
and cheaper transportation than we have at present. Parcels post will be a great boon to the bee business provided the bees are not barred out because of some fool's mistake.

R. W. WARD.

Uvalde, Tex.

A Very Simple Honey-house Escape

I think that the honey-house bee-escape shown by J. E. Thompson, Oct. 1, page 636, is too complicated. The accompanying sketch shows a very simple arrangement of fastening screen wire to a window, which I am using on my honey-house windows, and which serves the purpose of a bee-escape to perfection. It is so simple that a ten-year-old boy



can fix it. The dotted lines marked A represent boards $\frac{3}{8}$ inch thick by 2 or 3 wide, the two outside ones reaching down to the bottom of, or a little below the window-sash, and the two inside ones extending down to the bottom edge of the top-bar of the casing. All of these strips extend upward anywhere from 6 to 12 inches above the top of the window. Stretch and tack the wire across the window to these strips and to the bottom of the sash, leaving the upper edge of the wire loose, except where it is tacked to the inside strips. Bees inside the house will naturally alight on the screen, and just as naturally climb upward and out of the house through the $\frac{3}{8}$ -inch space between the screen and the side of the house itself, 6 to 12 inches above the top of the window, according to the distance your strips extend above the top of the window. Bees on the outside, trying to get inside, will never find these $\frac{3}{8}$ -inch spaces that far above the top of the window, but will put in all their time right at the top of the window.

I have used this arrangement for years, and never yet have I seen a single bee get in from the outside, while those on the inside crawl right on out without stopping.

B. W. SIMMONS.

Mexia, Texas, Oct. 7.

[Our correspondent makes a good point in that the wire screen should extend 10 or 12 inches above the window-frame itself. One foot is better than six inches, and we are not sure but 18 inches would be better than 12. When robbers get started, and get

on a perfect rampage, they will sometimes go down back through the top of a screen window similar to the one shown in the illustration; and it is, therefore, important to have plenty of space above the window so that the exit for robbers will be high enough above the window so as not to attract the entrance of other robbers.—ED.]

Feeding a Bad Proposition for One Not Prepared for it

In over thirty years of beekeeping I have never had to feed until this fall. I attribute the fact to my having always lived where there was never fall nectar sufficient to be of any profit; and, lest sections be spoiled with the admixture of dark and strong honey, or the colonies store an amount in the brood-chamber insufficient to carry them over winter, my practice has been to remove every section-super the middle of July, when the clover yield is done in the clover belts. Thus my colonies have had all fall nectar for their own use, and ended the seasons heavy with honey for winter stores.

In this locality this year, though clover blooms held much longer than usual, little nectar was gotten from them or fall flowers; robbing is prevalent, and stores are quite short.

I never even owned a feeder until now. I sent for a Miller and some division-board feeders. Every feeder, though painted at the joints, leaked, and ran syrup out of the hive entrance.

I find feeding, if not prepared for, expensive, troublesome, encouraging to robbing, and very uncertain as to results.

T. CHALMERS POTTER.

Doylestown, Pa., Nov. 22.

Where Did the Goldenes Come From?

It is under discussion as to how the golden Italian bees originated—that is, what stock or stocks they were bred from. Please let me know.

Soledad, Cal., Nov. 16.

D. A. PUGH.

[Golden Italians were obtained through selection in breeding; that is, by breeding from the yellowest stock of Italians until the four or five banded bees were obtained. Since the yellowest Italians come from southern Italy, where the bees are known to be crosser than the leather-colored stock from northern Italy and Switzerland, the reason for the fact that the golden Italians are more irritable on the average is plain. Some of the goldenes have some Cyprian or Syrian blood in their makeup. This accounts for the occasional strains that are unusually vicious.—ED.]

The Physiological Effect of Feeding Sugar

This was shown through an analysis recently made of the unsealed and sealed sugar syrup extracted from the winter-nest of a colony.

In the unsealed stores the water contained was 19.5 per cent; in the sealed, 20.2 per cent; and so greater than allowed for honey, and not, as might have been supposed, greater in the unsealed cells.

Invert sugar, 60.9 per cent in unsealed cells; 64.1 in sealed cells. The inversion of the sugar continues, even in the cells. Accordingly the amount of cane sugar sinks from 14.9 per cent in unsealed cells to 11.1 in sealed cells. This abnormally high content of cane sugar betrays that it can not be honey. The nitrogenous content is quite normal, as found in pure honey—.28 per cent in the unsealed and .36 per cent in the sealed. Whence comes this albumen? Not out of the sugar, but the bees have added it out of its own organism. That explains why it is that, after being fed sugar, the bee is so eager for pollen with its rich store of albumen; also

why it becomes rapidly enfeebled upon being fed sugar if there is no substitute for the lacking albumen.

With absolute reliability the proof is consequently brought that bees are weakened—first, through too rapid feeding of large quantities of sugar; second, through feeding during continuously bad weather, or so late that pollen is no longer to be obtained.

It also becomes clear why the finest circle of pollen disappears after sugar is fed, without any brood being started; and why continued feeding of sugar in spring, with a lack of pollen at the same time, so rapidly decimates the colonies, and causes gaps in the surface of the brood. — DR. U. KRAMER, in *Schweizerische Bienenzeitung*.

A Simple Plan of Sifting to Find a Queen

Mr. B. Keep, page 703, November 1, wishes to know if anybody has a simpler plan than his for sifting bees. I think my plan is ahead of his in at least two particulars. In the first place, I do not have to drive nails in my good excluders; and, second, bees run up through an excluder easier than they will run down.

I move my hive off the old stand, put down a new bottom-board, lay a wood-bound excluder on it, then set an empty hive body on the excluder. I take out my frames one at a time, look them over carefully, then shake them in front of the entrance; and, after shaking, put the frames in this empty body. Finally I shake the bees from the bottom-board and old hive body in the same way.

After treating one hive I go to the next; and in thirty or forty minutes after I am through, the bees are all in their hive. Then I lift the hives off the excluders and find the queen on the bottom-board or on the excluder. C. A. MCCARTY.

Freewater, Ore.

[This plan is similar to that mentioned by Robert Forsyth, page 83, Feb. 1, 1912, except that Mr. F. has a special sieve designed to slip in the entrance.

As Mr. McCarty says, bees will go upward through perforated zinc when placed between the entrance and hive proper much more rapidly than they will go down. The reason for this is plain. When they are shaken in front of a hive there will be a regular stampede to get in. When they are shaken into an upper story with a perforated zinc bottom there is no particular desire to go below, and they will often hover together in a large mass, especially if the queen is with them, and it may be some time before they will all go down. For this reason perforated zinc in front of the entrance, or just above the bottom-board, is to be preferred to one placed above the brood-nest.—ED.]

Shipping Cases; Carrier Needed

Mr. Editor, you've been doing a good work by hammering away about carriers and safety cases to keep comb honey from being smashed when shipped. Now suppose you slip in a few words about another thing just as important. You can have carriers and safeties to your heart's content, and your sections will be smashed in them if the comb is not properly fastened in the wood; and to make sure of that fastening, *you must have full sheets of foundation and bottom starters*. A section thus well fastened on four sides will ship more safely in a regular shipping case without carrier than a section fastened only at top in safety and carrier.

Marengo, Ill.

C. C. MILLER.

[We agree to all you say except the last sentence, and there we take issue with you strongly. We do not care how a comb is fastened in a section. If it is placed in any kind of shipping case, and is dropped or handled roughly, especially in cool or cold weather, it will be almost sure to break out, or break enough so as to allow the honey to leak, thus

practically ruining its sale at even a fair price. On the other hand, a comb fastened on three sides of a section only, will usually go through in ordinarily good order *providing the case holding it is put with a lot of other cases into a carrier with a cushion of straw beneath*. A carrier is so big, heavy, and awkward that freight-handlers simply can not throw it. During the last few months we have seen a good many cars of honey unloaded. Not six weeks ago, as fine a lot of comb honey as we ever saw was shipped to Medina in ordinary cases without carriers. The most of this had combs secured to all four sides of the section. It was badly broken down on arrival. If this honey had been put up carefully, and had been loaded, by a beekeeper, on a car bottom, properly braced and cushioned with straw, there would not have been such a breakage and leakage. Or, better still, if it had been put into carriers, not a pound of that honey would have been broken. We hope, however, you will go on preaching the importance of full sheets and bottom starters. We join with anybody or any proposition that, directly or indirectly, will serve to deliver our comb honey to market in better condition.—ED.]

A Start with a Whole Apiary

I am a new recruit in the ranks of the bee profession. In March, 1910, because my health called for more outdoor employment, I violated all the established rules for beginners in bee culture by purchasing a small apiary (34 colonies that came through the spring), together with hives and all other tools and equipment. My experience in modern beekeeping was practically nothing. I purchased the A B C book, subscribed for GLEANINGS, and began to educate myself by reading the writings and experiences of others, and studying and experimenting with the bees themselves. My first season was so pleasant and profitable that I discontinued all my practice, except insurance work, and planned to extend my bee business to "full size." Last summer, with a spring count of 56 colonies, I of course had more honey, though the season here was affected unfavorably by the summer drouth as elsewhere. I now have 93 colonies, good, bad, and indifferent, in winter quarters. I have worked for honey rather than increase.

Pellston, Mich.

J. D. ROBINSON.

Hiving Bees on Leafy Twigs in a Box

J. E. Crane's comments, Sept. 15, p. 597, on hiving a swarm by smoking, is noted. Did you ever try them this way? Take a basket or box to the spot where they are clustered; drop a bunch of leafy twigs in the bottom of the basket or box, then shake the bees on these twigs. It seems to work well. I use a little smoke too.

Spargursville, O., Sept. 25. J. R. COOPER.

[We have never tried the plan recommended by Mr. Crane; but we feel very sure that leafy twigs are more inviting to bees or to a swarm than most other objects.—ED.]

"Denatured" Sugar

Our weather here in this country was so bad that the government allowed beekeepers sugar free from taxes. The sugar, however, at the factory, was mixed with 5 per cent of ground quartz (fine sand) so that it could not be used in the home.

JOS. A. HEBERLY.

Markt Oberdorf, Bavaria, Germany.

Fondant Bee Feed Used Successfully

I wish to state that I tried E. C. Newell's fondant bee feed (page 635, Oct. 1), and fed it in a Doolittle division-board feeder with great success. I fed four colonies 10 lbs. All are in fine condition at present.

JOHN R. DOUGLASS.

San Francisco, Cal., Nov. 6.

Our Homes

A. I. ROOT

Let every one of you in particular so love his wife even as himself; and the wife see that she reverence her husband.—EPI. 5:33.

A little child shall lead them.—ISAIAH 11:6.

During my busy life I have had occasion to listen to many sermons. This is especially true because I never absent myself from church and Sunday-school on the sabbath when it is possible for me to attend. As a matter of course I have listened to many good and powerful sermons, but God's messages have not *always* come from the pulpit. I told you some time back about a sermon that had a tremendous effect on my whole life; in fact, it helped to bring about a turningpoint in my life, and the preacher was a small boy less than six years old. Well, to-day, dear friends, I am going to submit to you a sermon from a girl twelve years of age. Even at that early age she is a child of prayer, and in answer to her prayers God has directed her to send this letter to me. I can not introduce her, because the letter gives only her name as "Little Ella," and no hint as to her parents' name or where she lives.* May God bless the message, and may the Holy Spirit go with it to the readers of GLEANINGS. We have thought best to print the letter just about as we received it, even to the quaint spelling of some words.

Dear Mr. Root:—I am a girl 12 years old and I am going to write to you, as I think God has told me to, asking you to do something for me.

I will tell you my story. My papa is quite well off, and we have an auto, and every thing nice; but he is unkind to mamma, and she is the best dearest mamma ever was, and she is always good to papa—just cries and cries because he is so nouty to her. She works very hard to take care of things around home. Papa just makes her wait on him all the time, and he never lets her go any place with him, and never takes her riding in the auto with him; but he takes lots of other ladies. My papa has got bees, and takes GLEANINGS, and he always reads Mr. Root's piece that has verses out of the Bible and he thinks they are such good thoughts. Now, Mr. Root, if you could write a piece, something about "men orto be good to their wives," I think my papa would read it, and it might help him. I ask God every night to tell me what to do, and I just think of you. So I guess he told me.

* The thought several times came to my mind when deciding to give this letter a place in GLEANINGS that the father, when he sees it, may be displeased with the little girl; but please let him bear in mind that the message may fit a hundred or more different households among our 30,000 subscribers. Even if the child has a mistaken idea in some respects, her message is honest and good. It may be the means of restoring peace and harmony to a thousand homes, through the providence of God. And let me suggest to this good friend of mine who has been reading my writings, that the proper thing to do is to put your arm around the child and thank God he has given her to you, and has chosen her to bear a message of peace and good will to the children of men.

I pray you will not throw this in the waste basket and not pay any attention to it. I will watch GLEANINGS. Papa swears at her, and say offul mean things to her too, and don't ever give her any money.

LITTLE ELLA.

You will note from the above that our young friend had no idea that her letter would be printed; but I have taken the liberty to do so, because I am sure it is more touching, and will reach more hearts, than any thing I could write. Her people are well to do, as you will notice; in fact, they have an automobile. But before taking it for granted that the father is alone to blame, I want to suggest that, inasmuch as it always takes "two to make a bargain," my experience is that it *usually* takes two to get up a quarrel or to stir up ill feeling. The child seems to take it for granted that her mother is in no way at fault for the existing bad state of affairs in that home with its pleasant equipment and surroundings. But I greatly fear, from her frank little story, that the mother too, at least in a measure, is in the wrong. Perhaps she is tempted to give way to complaining and fault-finding. When Satan once gets a hold in a home, it is sometimes very difficult indeed to make him let go. Nothing but the love of Christ can banish the demon and bid him be gone. This good woman should be very patient, and she should be very careful about criticising and finding fault. May be she is like our good friend Martha, as we read in the 10th chapter of Luke—overcareful about things that are comparatively unimportant.

If our young friend has gotten things exactly right, the father is certainly very much at fault; but please notice she tells us that he always reads with great interest "Mr. Root's piece that has verses out of the Bible, and he thinks they are such good thoughts." If this is true, that he loves and admires the verses I have selected out of the Bible, he certainly can not be a *very* bad man. I think it is quite likely—yes, I am almost sure—that this man and wife are, as a rule, good and worthy people. Perhaps one or both are church-members, and yet Satan seems to have gotten a foothold in that home. He is prejudicing the hearts of both of them, and I know by experience that it is often a pretty big job to get him out. Each of the parties will have to take a decided stand and say, "Get thee behind me, Satan." Oh dear me! I know all about it, for I have been through it all; but, thank God, it was years ago. As I go over the past in memory I can not

help recalling the incident where the disciples utterly failed in their attempt to cast out a demon. Jesus told them, as if to encourage them, "This kind can come forth by nothing, but by prayer and fasting." They went to the Master, which is always the right thing to do, and just as this little girl has been praying over the matter of the want of love and gentleness between her father and mother. I suppose Jesus meant by "fasting" that we should be more anxious to have the demon banished than we are to have our daily food. In fact, we should set about banishing evil spirits with such earnest determination that we shall forget even hunger and daily food.

It seems to take a good while and an earnest effort for the average man or woman, or, say, father and mother, to learn that a little thing may start discord. The husband should be exceedingly careful in choosing words when when he feels disposed to find fault, and the same is true with the wife. This is especially true, I think, as we get to be older. Both men and women settle down into fixed habits as they become older, and sometimes these habits of the two parties clash. Now, when you feel like remonstrating or suggesting a change, be very gentle about it. Take the dear wife by the hand as you did fifty years ago. Put your arm about her as a reminder that you two are one. Suppose you want her to let up a little on the housework, and not to be so particular about having every thing "spick and span," and free from dust. Suppose you wish her to attend conference or some religious gathering, and she says she is right in the midst of ironing, and it can not be dropped. If you wish to suggest that spiritual things are of much more moment than the ironing, say it gently and lovingly; and may I suggest to the dear wife, if she finds the good husband is getting to be careless about cleaning his feet or removing his dirty overshoes before coming into the house, she should be very gentle in criticising. Wait until he is not hurried, say some time when he is in a good frame of mind; then tell him how your happiness depends on a neat and tidy dining-room and sitting-room. Suggest to him getting a good substantial foot-scraper to clean the feet; also one of the best modern rugs near the door where he usually comes in. If you go about it the right way, asking God to help you to be gentle and kind, you will surely succeed, and the blessing of the Holy Spirit will follow you.

Now a word about automobiles. I am really afraid they are going to make trou-

ble in more than *one* home and in more than *one way*. Mrs. Root and I have been criticised and laughed at by a certain class because we have never yet owned an automobile that cost a thousand dollars or more, when at least a good many think we *might have* one costing two or three thousand dollars. These high-priced automobiles may bring a kind of happiness for a time; but I feel sure that a great part of them will, in the end, bring sorrow and disappointment. If they are used for taking the whole family to church, well and good; but our last county paper tells of a great drygoods store firm that took all of its employees a dozen miles or more to an outing among some rocky scenery "*on Sunday*." I have feared these automobiles, especially the stylish and expensive ones, might lead to *divorces*. If the good wife who has all her life been in the habit of saving should not care to go on these trips, especially on *Sunday*, it would not be strange if the owner would take some other woman or women who would "jump at the chance" to go.

Our young friend says, "Mama works hard to take care of things around home;" and she also suggests that the father rather expects her to "wait on him all the time." I can readily imagine that the poor woman, in her anxiety to have her household at all times in perfect order, may not herself be always in perfect trim to go out riding like these other ladies mentioned. Perhaps she has waited on him all her life so faithfully that he takes it as a matter of course, and forgets all about it. By the way, I wonder if this little girl's sermon does not hit, first and last, a good many homes, and not only a good many fathers but mothers also. May God in his infinite mercy and loving kindness send the Holy Spirit with this childish message; and may the angel of peace and love, because of it, find an abiding-place in the hearts of many a father and mother.

AVIATION—WHY ARE SO MANY LIVES LOST?

My dear Mr. Root:—I enclose clippings which explain themselves—the one regarding the fairground managers compelling aviators to ascend against their will, and the other on the subject of your talk in the current issue, also confirming my statement.

Lake Roland, Md., Sept. 29. B. B. JONES.

Below is the clipping from the *Baltimore Sun*:

AVIATOR GILL WAS NERVOUS; OBJECTED TO GOING UP IN THE AIR, AS IT WAS GETTING DARK.

CHICAGO, Sept. 20.—"Officials in charge of the aviation meet are all millionaires, and none of them knows the first thing about aviation. They violated every rule to safeguard the lives of the aviators."

William Pickens, manager of aviator Horace

Kearney, so testified at the inquest to-day of Howard W. Gill, of Baltimore, who was killed at the aviation meet at Cicero last Saturday, when his biplane collided in the air with a monoplane driven by George Mestach, a French aviator.

"Gill told me before he went into the air on the day of his death that he was displeased with the way the meet was conducted," said Pickens. "I don't like this idea of flying at twilight," Gill told me.

"Gill was nervous before he started. He went up only after the officials insisted the meet would be a failure if the crowds were disappointed. Mestach is not to blame for the accident. In fact, I don't believe either aviator was."

The testimony of George Mestach, the French aviator, with whose monoplane Gill's biplane collided, resulting in Gill's death, was to the effect that he protested against going up.

"I protested to the Aero Club of Illinois against flying in the approaching darkness," he said, "but they insisted I should fly because the crowd would be disappointed if I did not."

"I consented to go up only after officials had promised that my machine would be the only one in the air," Mestach continued. "They didn't keep their promise. Two biplanes continued to race, and, instead of keeping close to the ground, where they were supposed to remain, they climbed. I was going at terrific speed when I saw one of them about 300 feet ahead of me. I tried to avoid a collision, but it was impossible."

William Burns, of Dayton, Ohio, who served as

Gill's mechanic, testified that Gill had protested that it was too dark to race, and expressed fear that an accident would result with so many machines in the air.

The above condition of things brings to mind the point in Chafin's address in our issue for Nov. 1. The voice of the people, or I might say the voice of the majority, was wrong—*entirely* wrong. That "howling mob," as we might call it, was guilty of murder when it insisted that the aviator should make a flight in spite of his protest. Somewhere out west we had a similar occurrence. A young boy who had not had very much experience in aviation protested that the wind was too violent, and said he could not fly, and *knew* he couldn't, and did not dare to try. Finally, provoked by the unreasonable taunts, he replied as follows: "Well, if you insist on it I will fly, even if it breaks my neck." And it *did* break his neck. If that comes under the head of "local option" I want to say I am *not* in favor of submitting such questions to a crowd of hoodlums, and I never was.

High-pressure Gardening

MY APPLE STORY.

May the Lord be praised for apples! and may he be especially praised for the bountiful crop of apples that he has seen fit to give us this present year. In the Cleveland markets good apples are offered as low as 40 cts. a bushel; and, so far as I can learn, they are plentiful almost everywhere. Probably thousands if not millions of bushels will go to waste because there seems to be no market for them in many places. We hope the new parcels post will open a short cut between producer and consumer, and give the *children*, at least, everywhere an abundance of apples—red, "rosy-cheeked apples"—as well as those of other kinds.

Apples are still my only food for the last meal in the day. Sometimes I do take a little bit of cheese along with my fruit, for I have been all my life in the habit of using cheese with fruit, especially tart fruit.

Now, I have made some important "discoveries" during the past season in regard to apples—at least they are important to me, and I hope they may be helpful to others. When we first moved on to our new premises 32 years ago, for a little time I was too busy to plant fruit-trees. Finally a tree agent came along and said he had been delivering fruit-trees to the farmers, but there were about a dozen trees left. The man who ordered them was so far

away that he could not very well go after him; and he said I might have the lot for a very small price—I think something like ten cents each. Well, we planted them out along where we proposed to have a driveway from the main road to the barn. It took about twelve trees. After they had begun bearing I sent specimens to the Department of Agriculture, and they gave me their names. I wonder if everybody knows that our Department of Agriculture will not only name your apples on receipt of samples, but they will pay all postage. Address the Pomological Department of Agriculture, Washington, D. C.

This row of trees was pretty close to the highway. The two first were Cocklin's Favorite. When the trees began to bear, the apples were so puckery and tasteless that I wondered for quite a time why *anybody* should call them a "favorite." But we soon found out that, after they had become ripe and mellow, they had lost their puckery taste, were full of juice, and had a peculiar delicious flavor, something like a very ripe pineapple. Another reason why we did not appreciate the Cocklin's Favorite was that the two trees were allowed to overbear, and consequently a great part of them were small and gnarly. After two or three years I began to discover what severe pruning will do. Last spring we

paid about \$15.00 to a man for pruning about fifty apple-trees. Well, this pruning made the Cocklin's Favorite larger and fairer than ever before; but notwithstanding the trees were loaded almost to the breaking of the limbs, when the apples began to ripen along in August, as there was no market for early apples, the ground was literally covered with great beauties. We told the neighbors to help themselves. I told our employees, as they passed the trees so near the sidewalk, to help themselves and to get a basket and take some home. Well, it was worth a hundred times what those trees cost to hear the people shout, especially the urchins, as they took a big bite of those luscious apples. Now, do not write me to send you some grafts, for I start for Florida to-day, Nov. 5, and there is no one here on our busy ranch who has the time or takes the interest to cut and pack grafts. Go to any nurseryman and buy trees of Cocklin's Favorite. The next tree in the row was Early Harvest. This ripens considerably earlier than Cocklin's Favorite. But you know all about it, so I do not need to describe it.

The next tree proved to be Rawle's Genet, sometimes called "Genet" for short. This is the latest-ripening apple of which I have any knowledge. They do not even color up much before Thanksgiving time in our locality. They are hard as a rock, and keep so until spring, and with a little trouble you can have them the Fourth of July.

Now, perhaps I had better mention right here one of my discoveries. When you have an apple-tree, early, medium, or late, if you wish to prolong the season and have fine fruit for a long while, begin to gather a part of the apples as soon as they commence to show color or come anywhere near maturity. Keep these first-gathered apples, unfit to eat at the time, in the coolest place you can find—a cool cellar on the north side of the house—and you will find they will be a long time in ripening—a much longer time than if left on the tree; and the important point is that those remaining on the tree will develop larger and much finer fruit because they have more room and more sunshine. Apple-trees usually, especially where the trees are unpruned, set more fruit than they can mature properly. This year we went over the trees and picked off about half the fruit—that which was colored up most—and left the remaining half for two or three weeks. Unless you have tried it you will be astonished to see how this sort of thinning helps the remaining apples. Our winter apples

were mostly picked before the leaves had fallen, as we had no killing frost before Nov. 1. Well, with the trees covered with leaves it is almost impossible for the average man or boy to get *all* of them; and I have greatly enjoyed, during the past month, going around under our apple-trees, especially after a blow or storm, and picking up the great beauties that were missed at picking-time; and they are not only great beauties, but they are finer in flavor, and more luscious, than any apples I ever ate before. The point is, after we had gathered the fruit these few remaining specimens hidden by the leaves had the benefit of the entire vigor of the great strong tree. I suppose there was more vigor this year than usual away along late in October, because the great mass of foliage was bright and green and unharmed by frost. We gathered about half of Rawle's Genet the last of October. The remaining half will stay on the trees until Thanksgiving, or perhaps till toward Christmas. This Genet apple is so hard that frost does not seem to affect it—at least while hanging on the tree. The next tree in the row proved to be a Maiden's Blush, and probably you know all about this. Then comes the Northern Spy, the great standard winter apple for eating and cooking. Then comes a tree of the Fallawater, that a great many people make fun of, but which, when properly developed by pruning and other care, are, I think, along in the spring just luscious. And they grow so large that one big apple makes a good "supper."

Now, after purchasing and setting out the above trees I happened to visit our State fair; and when there I got to talking with an apple-man who wanted some bees. I traded him bees enough for a hundred apple-trees. I can not tell you about the whole hundred trees, but I am going to speak of three of them in particular in that lot. They are the Gravenstein that is just now making such a sensation, not only in the great apple regions of Colorado and Oregon, but wherever these apples are shipped. I suppose you know our pomologists have graded apples according to quality. No. 1 is the poorest and No. 10 is the best. I think the Ben Davis has the honor(?) of being classed as No. 1; but some of the Ben Davis apples raised down in Missouri, "the land of the big red apple," are greedily taken at a nickel apiece along in the spring down in Florida. Well, while the Ben Davis is classed as the poorest, the Gravenstein *heads* the list for quality. Its one fault is that, in our region, it

is a fall apple. We began eating them in August—I think the last of that month; and while disposing of our apples before going to Florida we had two bushels of beautiful Gravensteins as late as Nov. 1; and my second discovery is to tell you how I managed to prolong the season of this exceedingly luscious apple. When they first began to show signs of ripening I picked those that began to show color, and put them in a cool place, as I have explained. Then we kept on picking them in this way. Of course, the five families (each one of our five children has children of their own, one or more), were clamoring for these Gravensteins; and I suspect that some of them thought "grandpa" was getting to be penurious in his old age because he doled them out only soft apples, or those that had just commenced to spoil. In fact, Mrs. Root said, with a little sarcasm, that my great discovery consisted in having only rotten apples to eat all the while, while the common way was to pick out the best and throw away the rotten ones. Now, before I had reduced the matter to a "science" perhaps this was somewhat true; but I have just discovered recently that neither the Gravenstein nor any other apple commences to decay without showing symptoms, even before a rotten spot is visible. If you sort over the apples you have on hand, say twice a week, and press them gently, you will find that the one that is getting ready to spoil will first become mellow, especially on the spot where the rot starts. After a little practice your fingers will become sensitive to these spots, and they will almost automatically pick them out. Now, use these apples thus picked out, at once, or give them to your neighbors to use. In fact, any apple is at its *very best*, just *before* decay becomes visible. You may say this is lots of trouble. But I love apples so much that I just enjoy it. When I am tired of my work in the office, the thought of going out in the cool air and into the apple-shed, and "sorting apples," makes me feel like a boy again.

Now, there is another science in making such work pleasant and handy. Have enough potato-boxes to contain all of your apples. Turn two empty ones upside down. Now set a crate of apples on one empty box and an empty crate on the other. Put them side by side, and they are just high enough so an old man like myself can work without stooping over very much. Take two apples in each hand. If small, you can take three in each hand. Lift them from the full crate into the empty one. You want to get a strong light and good

spectacles, and then by the aid of the fingers and eyes you can very quickly pick out all the apples that are going to spoil, and put them in a little basket near by.

This year our Northern Spy apples have not kept nearly as well as usual. As they are winter apples I did not go over them at all until they had stood perhaps two or three weeks. To my great surprise, out of six bushels I found almost a whole bushel that had begun to rot more or less. Had I sorted them once a week or twice, as I did the fall apples, nearly all of them could have been saved. It has been urged that an apple partly rotten is unwholesome and unsanitary. That may be true; but a great big nice apple with a fourth or less of it spoiled is, in my opinion, just as wholesome as an apple entirely sound—that is, after you have cut out the bad part; and I ought to know, because I have eaten such apples for the past two or three years, and my health just now, thanks to a kind Providence, is just splendid. Some of you may say you would be very glad to have one meal a day of apples if you could afford it; but, dear friend, I think you are making a mistake. If you have three square meals a day, no matter where you are or how you are fixed, these three meals, counting the labor of getting them ready, cost at least ten cents each. Now, ten cents will buy a big lot of apples almost anywhere in the United States. In many places just now you can buy a whole peck for a dime; but I think that, as a rule, take it the year round, a nickel will buy as many apples as you want for a meal—especially if you buy them by the peck or bushel. I do not let a single apple spoil, as I have explained.

By the way, I forgot to mention that this rule I have spoken of will not always tell you about an apple that has commenced to rot at the core; but now here is another trick. Apples that rot at the core generally commence to do so at the stem end; and while you are sorting, put the tip of your fore finger down close to the stem and push it in toward the core. If decay has begun you will find it a little softer at that spot.

I have not mentioned wormy apples, because, thanks to science, it is a disgrace to have wormy apples in your orchard or in your apple-cellar. While you are sorting, if you notice any apples showing indications of being wormy, throw them out to be used first.

There is one other apple I forgot to mention. It is the Paradise Sweet. This, too, is puckery and insipid until along in the

spring; but as it feels soft and looks soft along late in the fall, you may think they are fit to eat, or that they will not keep anyhow; but when the weather becomes real cool they will stop rotting, and with proper care they can be kept clear up into June; and after having thus preserved some fine specimens until May or June I have frequently declared it to be the most luscious apple in the world. When it is real ripe and mellow its insipid sweetness gives place to a most delicious combination of tart and sugar.

Now, if you are getting to be an apple crank like myself I may some time tell you more about apples; for I feel sure that both you and I will live to a greater age by having apples take the place of at least one meal in the day; and not only that, you will keep the use of all your faculties to a greater period than with any other diet.

Now, dear friends, do not imagine from what I have written that it will be all right to eat a big lot of apples *after* you have already had a good hearty supper. It certainly will not work. Every little while, especially when we have a picnic or social, I eat "supper" like other folks, just to see how it will work, and good old Dame Nature makes a kick every time. Perhaps, however, to be more truthful, I should put it this way: My faithful old companion (all my life thus far) gives me the "kick," and says, "Come! wake up, 'old huz.' You are having the nightmare."

SWEET CLOVER AS A COVER CROP FOR APPLE-TREES.

We clip the following from the *Inter-mountain Fruit Journal*:

It would have been a crime some years ago to have any thing but the very cleanest cultivation in the orchard; and the fellow who allowed a spear of any thing green to show was not a good orchardist. Now the fruit-growers have come to realize that no soil is inexhaustible; and when much is being taken out from year to year something must be put back. It was impossible to get commercial fertilizer at a price that would permit its use, and there was too little stable manure available to do any good. Then some one discovered that alfalfa, red clover, cow peas, and even the once detested sweet clover was a most excellent cover crop that could be grown and turned under. This has been practiced almost universally in this section, and the orchards all show the results. Old trees that acted as if they were hide-bound are making excellent growth this year—proving the necessity of fertilization.

If I am correct, the above is exactly in accordance with the teachings of our Ohio Experiment Station. The once detested sweet clover is now gladly welcomed and wanted everywhere. Did you ever?

SWEET CLOVER AND THE DIFFICULTY OF GETTING IT TO GERMINATE THE FIRST YEAR.

The following letter from an experienced man illustrates the matter:

In March, 1911, I sowed 80 pounds of unhulled white-sweet-clover seed on 5 acres, and that spring I got a very poor stand; but I said I would let it go, for there was plenty to seed the ground another year. In the spring of 1912 there were three times as many plants came up as there were in 1911. You remember the spring of 1912 was very wet. I now have a splendid stand of clover on these five acres; part of it bloomed this summer, and part will bloom next summer. This is the reason I am anxious to have my seed hulled this time. I think it will sprout quicker. I want to sow about 1200 lbs. of white seed in the spring.

Brooksville, Ky., Oct. 14.

H. A. JETT.

As our friend suggests in the above, hulled seed is certainly more sure to germinate than that with the hulls on; and a process adopted by our Department of Agriculture, mentioned on page 324, May 15, treating the seeds with sulphuric acid where a prompt and full stand is desired, will very likely be advisable.

FARMING IN FLORIDA; BOTH SIDES OF THE MATTER.

I think you are wrong in printing that advertisement about Florida. I have been there, and know it is the poorest State for farming in the Union. I came near being caught. Thank God. He kept me from "land grafters."

Compton, Cal.

A. H. NASH.

My good friend, if you mean to say that the *whole State of Florida* is a poor place for farming, you are making a big blunder; but if you mean ordinary farming, such as we have here in the North—growing grain, for instance—you may be partly right; but if you were to go down to Manatee Co. just now and see what crops are being grown, and the prices that up-to-date truckmen get for their crops, I think you would be obliged to change your mind about that advertisement by the Seaboard Air Line. There are, without question, places in Florida where the land is very poor and unproductive. Perhaps your visit was made some time ago. Just now expert gardeners are obtaining results in growing potatoes, and other articles of food, that compare favorably with any other spot in the world. May be you had better make us another visit.

THE BOY WHO SMOKES AND HIS CHANCES.

I am sorry I can not tell where the following clipping came from. Does it not about hit the right spot?

The boy who smokes cigarettes need not be anxious about his future, for he has none.—*David Starr Jordan, President Leland Stanford University.*

Index to Gleanings in Bee Culture

Volume XL

In using this index the reader should not fail to note that it is divided into five departments, namely, General Correspondence, Editorials, A. I. Root's writings, Contributors, and illustrations. The index of General Correspondence includes everything except editorials and A. I. Root's writings.

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Cleanings for 1913

The six special numbers for 1912 were received with such enthusiasm that we have decided to outdo our efforts of last year, and we take pleasure, therefore, in presenting the following special numbers for 1913:

Jan. 1--Beginners' Number

Experiences and mistakes of beginners. Beginners' questions. An experience with a swarm of black bees.

Feb. 1--Old-timers' Number

It is a matter of great pride to us that nearly sixty of our present readers were with us back in the "Windmill Days," more than forty years ago, when GLEANINGS first made its feeble start. We have letters from these men that are intensely interesting to the beekeeper of to-day, and we shall publish them. We intend this issue to be a glimpse of beekeeping in by-gone days. In this historical number we hope to show something of the drawbacks that had to be met when beekeeping was in its infancy. Many lessons may be learned by reading history.

March 1--Women's Number

There have been repeated requests for a special number devoted to beekeeping for women. There were many requests for this last year, and we are at last prepared to furnish what we believe is a splendid array of material from

our beekeeping sisters who have made a success with their bees. There are thousands of other women who would be glad to take up bees were it not for their natural timidity, or their fear of stings. This number will serve, not to point out an easy path toward success, but to show how difficulties in the way may be surely overcome.

April 1--Out-apiaries

Ever since our special number on automobiles was out we have received complimentary letters regarding it, and requests for more particular information of the same kind. In this special number we propose to have a full discussion of the automobile as used in out-apiary work, both for hauling and for going to and from the yard. In this number there will also appear many articles regarding the equipment used at out-apiaries as outlined in our editorial, page 610, October 1.

May 1--Swarming and Increase in the North, South, East, and West

This is a subject that is of vital interest to every beekeeper in every locality, and no list of special subjects would be complete

without it. We shall make an effort this year to have articles from all parts of the country, so that no one can complain that the directions given do not apply in his special locality.

July 1--Marketing Honey

We already have a number of splendid articles from experts in this line. Beekeepers are waking up to the possibilities of selling their crop as never before, and those who have heretofore sold at any old price are beginning to realize the mistake they are making. This number will be full of practical suggestions for profitably disposing of the crop.

Aug. 1--Beekeeping as a Recreation

In addition to the army of men and women who are making beekeeping their sole occupation, there is a rapidly increasing number of professional men, lawyers, doctors, ministers, teachers, etc., who find beekeeping a delightful avocation. In this special number some of them will tell why beekeeping is so admirably suited for his purpose. Some "big men" are going to contribute to this number.

We are proud of the fact that GLEANINGS has never had to go begging for material. We have never seen the time yet when we did not have more good articles on hand than we could possibly use. Nevertheless, in spite of this, we are going to solicit this year a large number of the special articles mentioned above. We are not merely going to fill up our pages; we are going to try to give you the very best that we can obtain. Is all this only an introduction to prepare the way for an announcement of a higher subscription rate? It is not. The price remains the same—one dollar per year.

Gleanings in Bee Culture



VOL. XL. JANUARY 1. 1912. NO. 1.

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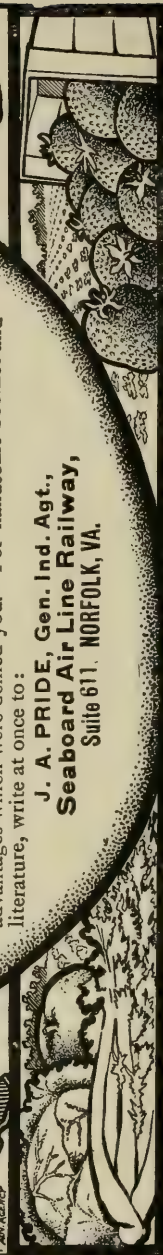
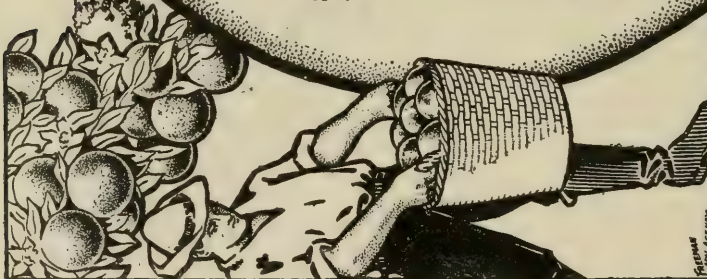
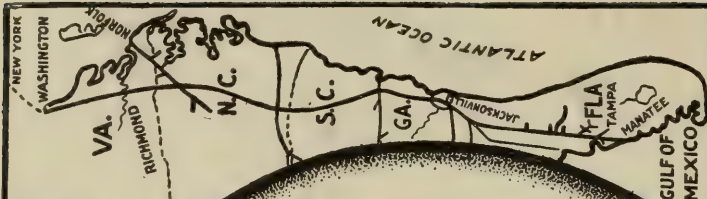
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Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, Dec. 18. **BLAKE-LEE CO.**

ALBANY.—The honey market is nominal, with little or no good comb honey of any kind. Extracted is more plentiful, especially buckwheat, which sells at 7½ to 8; but one would have to make some concessions to move round lots. Beeswax, 30 to 32. Albany, N. Y., Dec. 21. **H. R. WRIGHT.**

ZANESVILLE.—The honey demand is light, as is usual about the holiday time. Best grades of white comb are selling in single-case lots at 20 cts.; white extracted in five-gallon cans is quoted at 10 to 11. Beeswax of good quality brings first hand 29 cts. in cash or 31 in exchange for bee-supplies.

Zanesville, O., Dec. 22. **E. W. PEIRCE.**

CHICAGO.—The trade in honey has been quite slow during December, and there will not be much improvement until we get over the holidays. Prices remain nominally the same, with a downward tendency, as buyers find they can depress the market, owing to the fact that there are many scattered lots now being offered. Beeswax is quiet at 31 to 32.

Chicago, Dec. 18. **R. A. BURNETT CO.**

KANSAS CITY.—The demand for honey still continues to be light, and we do not look for a much better demand until after the holidays. January and February are generally good honey months. We quote No. 1 white comb, 24-section cases, \$3.25; No. 2 ditto, \$2.75 to \$3.00; No. 1 amber ditto, \$3.00; No. 2 amber ditto, \$2.50 to \$2.75; extracted white, per lb., 8½ to 9; amber ditto, 8 to 8½. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.
Kansas City, Dec. 22.

NEW YORK.—Trade is rather quiet just now, as is generally the case just before the holidays. Stocks of comb honey are rather light on account of the short crops, and receipts are of only moderate size, and we do not expect any more large shipments from now on. Prices hold firm at former quotations. While white-clover extracted honey is now scarce, there seems to be an abundant supply of all other grades. We expect to see lower prices from now on. For the present we quote California sage, white, at 9 cts.; light-amber sage, 8; white alfalfa, 8 to 8½; light-amber alfalfa, 7 to 7½; buckwheat, 7 to 7½. Beeswax is quiet at 30.

New York, Dec. 18. **HILDRETH & SEGELKEN.**

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.,** gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

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Root's Supplies—new and clean, and of the finest quality. New hives, new foundation, new sections—everything fresh from the factory in carload shipments.

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Just bear these facts in mind, and begin the new year right by ordering your season's supplies from

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2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Get full information,
prices, and samples.

The A. I. Root Company
Medina, Ohio

Honey Markets, continued from page 2.

CINCINNATI.—The market on comb honey has fallen off somewhat. The only demand is for fancy white, which sells in a retail way at \$4.00; jobbing, \$3.60 to \$3.75, according to quantity. Extra white extracted in 60-lb. cans brings 10 cts.; light amber in 60-lb. cans, 8½; amber in barrels, 7 to 7½. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Dec. 19.

SCHENECTADY.—A very unsatisfactory condition in comb prevails here, as most of our stock is of very inferior quality, more or less candied, and prices range accordingly, no fair offer being refused. This is unfortunate, as fancy white-clover honey is an attractive feature in dealers' stores during the holiday season. There is only a moderate demand for light and dark extracted, but we expect an improvement in the latter after Jan. 1. No change in prices.

Schenectady, Dec. 18. CHAS. MACCULLOCH.

ST. LOUIS.—Since ours of Dec. 4 our honey market has not changed in values. The demand, however, has decreased considerably, and the prices we quote are more or less nominal—namely, fancy white comb honey, 17 to 18; No. 1, 16; light amber, 15 to 16; dark amber, 12 to 13. Darker grades are not wanted at any price, but are nominal at 9 to 11. Broken and leaking honey is almost unsalable—nominal at 6 to 8. Extracted honey, white clover, 9½; white alfalfa, 9 to 9½; light amber, Southern, 8 8½, all in five-gallon cans; light-amber California, in five-gallon cans, 9; Southern, in barrels and half-barrels, 7 to 7½ for light amber; dark, 6 to 6½. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Dec. 19.

THE NATIONAL BEE - KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

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Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments solicited. Established 1875.

INDIANAPOLIS.—Demand is good for best grades of comb and extracted honey. White comb sells for 18 cts. in ten-case lots, finding ready sale. Amber grades are in slow demand at much lower prices. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, Dec. 18. WALTER S. POWDER.

CINCINNATI.—The demand for honey is rather good, considering the great quantity that is still in the West unsold. We continue to sell fancy comb honey at \$3.75 to \$4.00 a case; fancy extracted honey brings 9 to 11 cts., according to the quantity and quality purchased; while for amber extracted honey in barrels we are getting 6½ to 7½. We are paying 30 cts. per lb. for choice bright yellow beeswax, absolutely free from dirt, delivered here.

Cincinnati, Dec. 18. THE FRED W. MUTH CO.

LIVERPOOL.—Since our last report there have been no sales of Chilean honey, owing to a want of stock. However, there were sales of Haitian that sold at very satisfactory prices, and we anticipate a good demand next month. The dark sold at \$6.24, while amber sold at \$6.72. Of Jamaica, some 60 packages have been sold at \$6.72 to \$7.68. Arrivals of white and fine white California honey mostly go against contract at \$9.60 and \$10.32, C. I. T. respectively. A small quantity unsold has been quoted at \$10.44 to \$10.92 per quay. Nominal quotations of other qualities are as follows: Haitian, \$5.75 to \$7.20; Chilean, \$6.00 to \$8.40; Jamaican, \$6.24 to \$7.68; Peruvian, \$3.84 to \$4.80; Californian, \$9.60 to \$10.92. We have had a good demand for beeswax. About 80 bags of Chilean were sold at \$35.00 to \$39.92. Stocks will be none too ample for the spring trade. Other qualities are nominally worth as follows: African, \$32.57 to \$34.48; American, \$37.51; West Indian, \$27.80 to \$36.25.

Liverpool, Dec. 4.

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DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

Issued Semi-monthly

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Get Goods Quick. . .**

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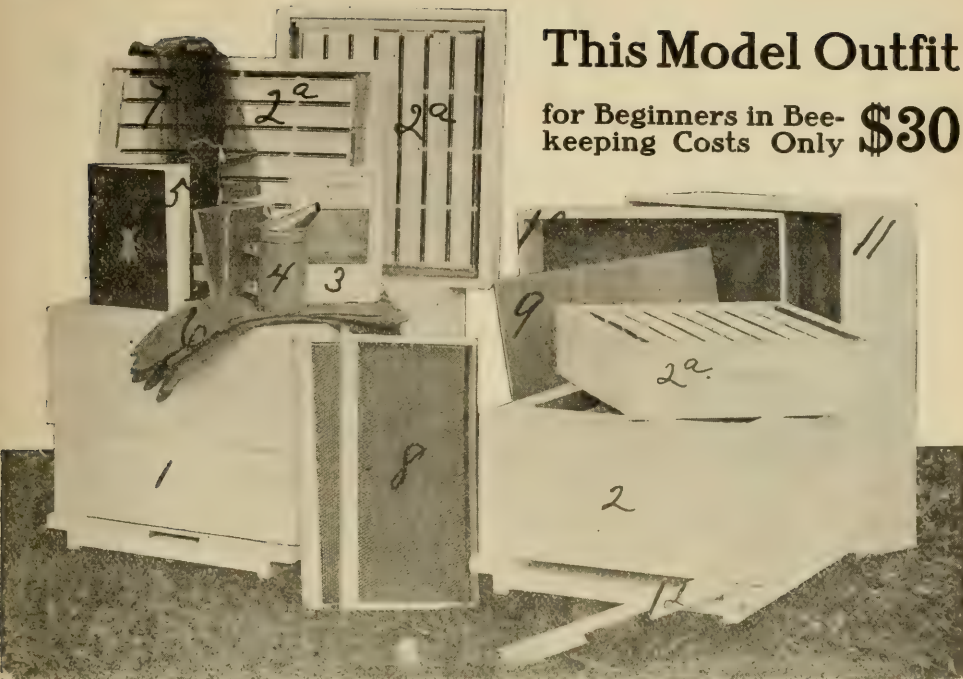
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No. 8 shows two brood-frames with full sheets of foundation from which the bees build honey-comb. There are ten such frames in each of the hives. No. 9 is a super-cover. No. 10 is a tray which is filled with chaff or other packing material to afford protection in winter. No. 11 is the hive-cover or roof which telescopes the hive-body as shown in No. 1.

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EVERY few days the friends write me, asking what poultry-book they had better purchase—which one I would recommend above all others, etc. Well, to get right down to it there is no *best* poultry-book. There are many good ones, but no one book contains *all* this good. The one that is most emphatic against humbugs and frauds, especially costly medicines for dosing chickens, etc., is the one I have frequently referred to, "The Dollar Hen." Now, while this is an excellent book—one of the very best ever published, perhaps—there are many valuable things to be found in other books that this book hardly touches on. As we have been offering it at a low price, clubbed with GLEANINGS, we have been several times out of stock, and at one time we thought we could not get any more, and so it was taken out of our book-list. We have now a good supply, however, and can furnish you the book for \$1.00 postpaid. But if you renew your subscription to GLEANINGS at the same time, we will furnish the book and GLEANINGS for \$1.50.—A. I. ROOT.

How to MAKE Money Raising Poultry, and Not how to Lose It

"The Dollar Hen" is not a boom poultry-book. It tells as much about what NOT TO DO as what TO DO. It thoroughly discusses every phase of the poultry business and tells how money can be made or may be lost. It gives a full account of all methods and systems of poultry-raising, as taught by private individuals. Mr. Hastings does not advocate complicated and expensive methods; in fact, he found such to be universal money-losers.

As a Government Expert

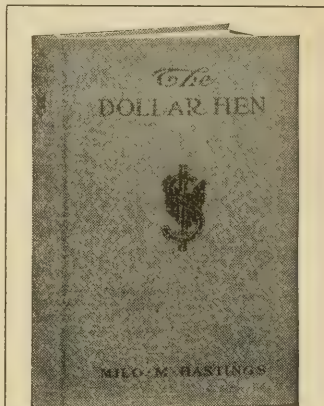
As a Government expert, Mr. Hastings investigated all the various private systems, patent feeds, and so-called poultry secrets. He visited the great successful poultry-farming districts of Petaluma, Little Compton, Watertown, the South Shore, and other regions—some wholly unknown to the poultry press—and gathered from all these sources the best ideas and most profitable practices. From his long practical experience on farm, poultry-plant, with State Experiment Station work, and Federal service, and with his unprecedented opportunity to get at the actual facts of the poultry industry, Mr. Hastings has laid out a typical money-making poultry-plant, called THE DOLLAR-HEN FARM, and has described the various necessary adaptations for different localities and conditions.

THE DOLLAR HEN

is a real book, substantially bound—not a paper-bound pamphlet of "System," "Secrets," or "Methods," but a book worth several dollars of any poultryman's money. "The Dollar Hen" as a vast fund of valuable information that required much time, expense, and effort. And think of it! You can have this authoritative and complete guide to profitable poultry, postpaid, for only \$1.00.

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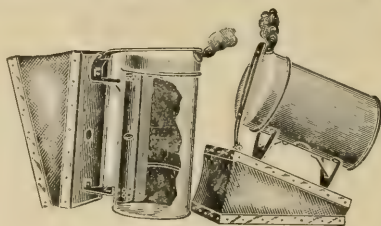
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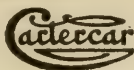
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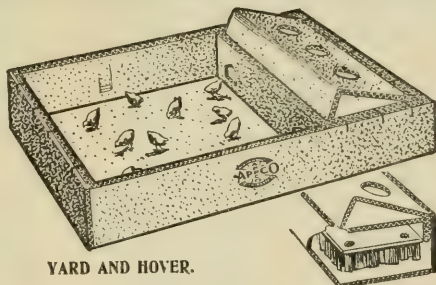
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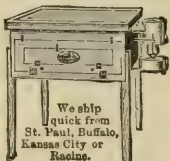
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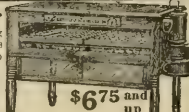
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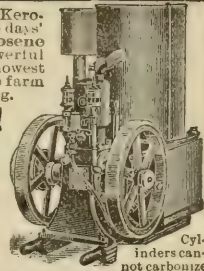
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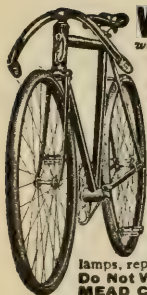
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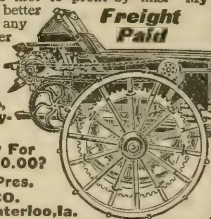
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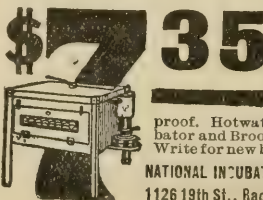
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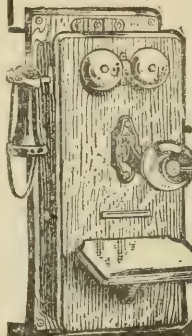
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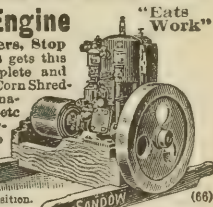
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SCARFF'S \$350.00 SEED CORN

We paid \$350.00 for the 10 ears winning the Grand Champion Sweepstakes prize at the National Corn Show. This is a record-beating price. We planted every kernel of these 10 ears on our own farm. Every corn grower will want to know the result, so we have a booklet, nicely illustrated with actual photographs of our growing corn fields, seed barns, residence, pile of ear corn harvested from 10 seed ears, etc. As long as they last you may have one without cost if you are an actual corn grower or directly interested in corn crops. If you would like some of the seed grown from these 10 ears, we will tell you how to get it without cost. Seed and Fruit Catalog Free.

W. N. SCARFF, New Carlisle, O.

HUNDREDS OF CARLOADS OF Fruit and Ornamental Trees,

Evergreens, Shrubs, Hardy Roses, etc. 1,200 acres, 50 in Hardy Roses, none better grown. 47 greenhouses of Palms, Ferns, Ficus, Everblooming Roses, Geraniums, and other things too numerous to mention. Mail size postpaid, safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS**, the queen of bedding plants. Acres of **Pæonias** and other **Perennials**. 50 choice collections cheap in Seeds, Plants, Roses, etc. For Fruit and Ornamental Trees ask for Catalog No. 1, 112 pages; for Seeds, Everblooming Roses, Cannas, Geraniums, Greenhouse and Bedding Plants in general, Catalog No. 2, 168 pages. Both **FREE**. Direct deal will insure you the best at least cost. Try it. 58 years. (25)

THE STORRS & HARRISON CO.
BOX 480 PAINESVILLE, O.

FERRY'S SEEDS

Good gardeners are those who raise good flowers and vegetables. Good flowers and vegetables come from good seeds. We produce good seeds—the inference is obvious. For sale everywhere.

1912 SEED ANNUAL
Free on Request
D. M. FERRY & CO.
Detroit, Mich.

STRAWBERRIES

Plants by the dozen or by the million. 120 acres planted in 163 varieties. All the standards and the most promising of the new ones. Largest grower in America. Every plant true to name. Also Raspberry, Blackberry, Gooseberry and Currant Plants, Grape Vines, California Privet and other Shrubbery. Cultural directions with each shipment. Beautiful Catalogue **FREE**. Send a postal today. My personal guarantee back of every sale.

W. F. ALLEN
57 Market Street, Salisbury, Md.

Great Crops Of . . . STRAWBERRIES



FREE BOOK

And How to GROW THEM

Is a complete treatise on strawberry culture written by America's greatest strawberry expert. Indorsed by agricultural colleges and strawberry growers of highest authority. Government reports show that strawberries yield more dollars per acre and give quicker returns than any other crop. Get our book and learn how. IT'S FREE!

R. M. KELLOGG CO.
Box 400 Three Rivers, Mich.

FOUR TOOLS IN ONE

A Drill Seeder, a Hill Seeder, a Double Wheel Hoe and a Single Wheel Hoe are all combined in Iron Age, our No. 6. It drills accurately any thickness desired. Shut-off on handle, brush agitator in hopper. Changeable instantly from Drill to Hill Seeder or reverse. Drops 4 to 24 inches, as desired. Changed to Wheel Hoe in three minutes. Is but one of complete line that fits the needs and purse of every gardener. Can be purchased in simplest form and added to as different attachments are needed. It does perfectly all work after breaking up of garden. You should see this tool. Ask your dealer to show it. Write us for special booklets.



Complete line of farm, garden and orchard tools.

BATEMAN M'F'G CO.
Box 1202 GRENLOCH, N. J.

STOP HIGH HARD LIFTS

Electric Low Down Handy Wagons, Complete

Make hauling easy. Carry any loads and are best suited to all farm work. Broad tires make good roads, avoid rutting and greatly reduce draft for horses.



Electric Steel Wheels for Your Old Wagon

Best way to make your wagon over, good as new. We send wheels to fit any size axle and make an end of tire setting and repairs. Send for free catalog.

ELECTRIC WHEEL CO., Box 23, Quincy, Ill.



Print Your Own

Cards, circulars, books, newspapers. Press, \$5; larger, \$18; rotary, \$60. Save money. Big profit printing for others. All easy rules sent. Write factory for press catalog. TYPE, cards, paper, &c.

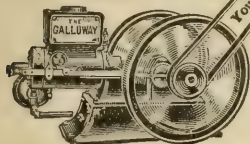
THE PRESS CO., Meriden, Conn.

\$50 TO \$300 SAVED

We are manufacturers, not merchants. Save dealers, jobbers and catalog house profit. I'll save you from \$50 to \$300 on my High Grade Standard Gasoline Engines from 1½ to 15 H.-P. price direct to you lower than dealers or jobbers have to pay for similar engines in carload lots for spot cash.

GALLOWAY

Price and quality speak for themselves and you are to be the sole judge. Sell your poorest horse and buy a 5-H.-P. only \$109.50



Direct From My Factory on 30 Days' Free Trial. Satisfaction or money back. Write for special proposition. All you pay me is for raw material, labor and one small profit. Send for my big BOOK FREE.

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1685E Galloway Station
Waterloo, Iowa

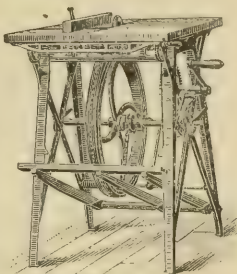
BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address:

W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



Carniolan Alpine Queens

—GREY WORKERS—

Shipped to all Parts of the World.

Select tested, March, April, May, \$5.00; June, July, August, \$3.50.

Select untested, June July, August, \$2.00.

Mailed, postage free. Safe arrival guaranteed. Dead queens replaced if returned in 24 hours. Intern. money-order with every order. References respecting financial and commercial responsibility of the undersigned Ass'n can be had at every Imp. and Royal Austro-Hungarian Consulate in the U. S. and Canada. Write for our booklet Orders for nuclei and hives can not be filled until every thing concerning this line of business is arranged properly. Remit money order and write English to

The Imperial-Royal Agricultural Association Ljubljana, Carniola. Krain, Austria

FOR MENDING HARNESS

It takes shoes, tents, awnings, pulley belts, car-pets, saddles, suit cases, buggy tops, thread, dash boards, or any heavy material. FEEDS STEWART'S AUTOMATIC

from spool and does the work of any harness maker machine. It is indispensable for farmers. Agents wanted. Sent prepaid for \$1.25. Send at once for catalog. STEWART-SMANNER CO.
85 Hermon Street, Worcester, Mass.



Olds' Red River Valley Seed Potatoes

Red River Six Weeks Best extra early variety for the market gardener. Makes a quick growth, ripens evenly, produces well. Our Red River grown Six Weeks this year are fancy stock. Smoothest and handsomest in years.	Red River Early Ohio Early Ohio is the most popular early in the country. Olds' Red River Ohios are unsurpassed for purity, smoothness, fine appearance and strong vitality. We sell thousands of bushels every year. Get our prices.	Red River White Ohio Similar to Red Early Ohio except in color, which is a fine white, or nearly so. Just as early, just as good in quality and very productive. 557 bushels have been grown on one acre.	Red River Irish Cobbler Irish Cobbler is the successor to Bliss' Triumph and is fast superseding it as an extra early market variety. It outyields Triumph, looks better and eats better. Our Red River grown seed is the best obtainable.
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Red River Seed Potatoes, grown in the cold northwest, are ahead of all others for quick early maturity, vigorous growth and great productiveness. Better than ever this year.

Olds' Seed Potatoes have a national reputation, 24 years' experience growing and handling; our potatoes are known in every section and we are acknowledged headquarters for pure seed.

Send Postal for 88 Page Catalog giving correct descriptions and true illustrations of the best in Seed Potatoes, Corn, Oats, Barley, Field Seeds, Garden Seeds, Poultry Supplies and Tools.

L. L. OLDS SEED COMPANY, Drawer G, Madison, Wis.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

White alfalfa sweet-clover honey, 8 cts. per lb. in 120-lb. lots. T. H. WAALLE, Nampa, Idaho.

FOR SALE.—Amber fall honey, 60-lb. cans. Send for sample. HENRY HETTEL, Marine, Ill.

FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Clover honey in 160-lb. kegs, 9 cents; buckwheat in kegs or 60-lb. cans, 7½. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—10,000 lbs. extra-fine table honey, all most white—\$6.00 per 60-lb. can. G. L. BUCHANAN, Holliday's Cove, W. Va.

FOR SALE.—Clover honey ripened on the hive, in 60-lb. cans; gathered in June, extracted in August. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans. J. P. MOORE, Morgan, Ky.

FOR SALE.—Some very nice wild-red-raspberry extracted honey at 10 cents per lb. A special value in light amber at 9 cts.; also some good at 8 cts. All in new 60-lb. (net) tin cans. E. D. TOWNSEND & SONS, Remus, Mich.

WANTED.—To exchange a good residence property in Centerville, Iowa, for bees or part bees and cash; lot, 200 x 200, eight-room house; cellar, 16 x 26; barn, 30 x 30; other buildings; living well and clean, and almost all kinds of fruit. J. M. CATE, Winfield, Kansas.

HONEY FOR SALE.—In carload shipments or small quantities. In view of crop shortage we bought liberally of all first-quality honey we could get, with the result that our supply is a little larger than our requirements call for. We offer water-white clover, alfalfa, buckwheat, and amber extracted honey, all bought with greatest care, and of excellent quality, at low prices in any quantity. If interested, write for samples and prices, stating what flavor you want. THE A. I. ROOT Co., Medina, O.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

In Florida. Root supplies. Save transportation. Free catalog. G. F. STANTON, Buckingham, Fla.

Soy beans, grow 30 bushels per acre. Worth \$90. Sample, 10 cents. JACOB McQUEEN, Baltic, O.

FOR SALE.—2000 good second-hand 12-inch, 1000 new 14-inch T tins, 50 cts. per 100. A. S. PARSON, Rocky Ford, Colo.

Root's goods fresh from factory. Save the excess freight. Buy here. Catalog if you want it, L. W. CROVATT, Box 134, Savannah, Ga.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—100 Danz. hives (42 with bees in good condition), 300 Danz. supers, sections, foundation, and general supplies. Good range. E. W. SMITH, Troutdale, Oregon.

FOR SALE.—Sweet-clover seed, or Bokhara melilotus. Best fertilizing, hay, grazing, and honey plant known. For particulars write to MRS. J. T. MARDIS & SONS, Falmouth, Ky.

New crop alfalfa seed; 4 lbs. by mail, \$1.10; 50 to 100 lbs., 1½ cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN Co., (Successor to J. M. Jenkins.) Penn. Miss.

Send 15 cts. for a three-months' trial subscription to the Review, and read about "The Most Profitable Year of a 1200-colony Bee-keeper," in the December number. Address THE BEE-KEEPERS' REVIEW, 230 Woodland Ave., Detroit, Mich.

Complete comb-honey outfit for 1000 colonies, consisting of 460 colonies of bees in good condition; hives with worker combs, supers filled with sections, etc. Correspondence solicited from parties meaning business. Address FRANK RAUCHFUSS, 1440 Market St., Denver, Colo.

Help Wanted

WANTED.—Experienced bee-keeper (married preferred) to go in partnership or work bees on shares. AUGUST WOLBERT, Eldora, Bryan Co., Ga.

WANTED.—Assistant apiarist. Must be steady, honest, and willing to go to Colorado or Montana as needed. THE ROCKY MOUNTAIN BEE Co., Berthoud, Colo.

WANTED.—A young man of good habits, and an experienced queen-breeder, desires a position in a first-class queen-rearing apiary. State wages and conditions in first letter. Will take part queens in lieu of wages. H. C. SHORT, Rt. 2, Winchester, O.

Bees and Queens

Fifty per cent discount on queens.
GERMANIA APIARIES, Germania, Ark.

WANTED.—One to two hundred colonies of bees in hauling distance.

A. S. PARSON, Rocky Ford, Colo.

"A Battle between Bees and Red Ants." Read it in the December Review. Three months' trial subscription, 15 cts. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, \$1.00; tested, \$1.50; select tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, \$1.00; select tested, \$3.00; also nuclei and full colonies. Send for circular and price list to GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodi., wired, body and sh. super, redw. dov., three coats white sheeted lids; each neat, modern, and full of stores—any time.

JOS. WALLRATH, Antioch, Cal.

My queens will be ready to mail May 1, 1912; will rear from A. I. Root's, Jno. M. Davis', and J. P. Moore's choice breeders. Book your orders now, and get your queens early and of quality. Three-banded and also Golden for sale, 1912.

H. B. MURRAY, Liberty, N. C.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

Will exchange a four-frame automatic extractor for nuclei or cash, cheap.

B. F. SMITH, JR., Cowley, Wyo.

WANTED.—Bees in Florida, Georgia, or South Carolina, in frame or box hives. Give full particulars and lowest price. Address

"BEES," Box 197, Augusta, Ga.

WANTED.—To exchange Root bee-supplies, either for money or honey. November cash discount, 5 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To correspond with bee-keepers in Huron, Tuscola, Sanilac, and St. Clair counties, Michigan. We have a good proposition to submit to you. Address

Box B, care of GLEANINGS IN BEE CULTURE, Medina, Ohio.

WANTED.—90 colonies of Italian bees for spring delivery in Southern Idaho. Must be guaranteed free from disease, in good standard hives, Hoffman frames, on straight full worker combs—in fact, strictly first class. State full particulars and lowest cash price in first letter.
Box 56787, GLEANINGS IN BEE CULTURE, Medina, O.

Miscellaneous

COINS.—To introduce my new catalog I will send 50 foreign stamps and large curious coin pocket-piece, only 10 cts. R. CHAPIN, New Berlin, N. Y.

A California bee-keeper "Believes Thousands of Dollars are Lost each Year by Producing Comb Honey Instead of Extracted." Told in the December Review. Send 15 cts. for three-months' trial subscription. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Real Estate

FOR SALE.—95 acres of land 4 miles of railroad; a good fruit, bee, and stock farm in a warm climate; good four-room house, good barn, good water; 40 acres cleared, the rest in timber; good vein of coal on the place. Price \$1250. Write me.

T. G. COOPER, Rt. 4, Harriman, Tenn.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates.

F. H. LA BAUME,

Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

TO HOMESEEEKERS.—Are you looking for a town where you can have every advantage of a large city? where rent, taxes, and living are very low? where schools are the best, and a town only one hour's ride from the largest city in Ohio? If so, investigate the opportunities in Medina. Address
PRESIDENT OF BOARD OF TRADE, Medina, Ohio.

Poultry

FOR SALE.—S. C. White and Buff Leghorn cockerels, \$1.00 to \$5.00. CARL W. SCHOFIELD, Mystic, Ct.

April-hatched Indian Runner ducks, fawn and white; \$2.00 each; \$3.50 a pair; \$5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

DUMARESQ SICILIAN BUTTERCUPS.—Some fine young stock from my blue-ribbon winners at Apalachian Exposition and other shows. Testimonial of pullets laying in 124 days. Send for circular. MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1912: beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business: June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

Convention Notices.

I give you herewith the preliminary announcements of the annual conventions of the nurserymen, fruit-growers, and bee-keepers of this State.

The State Horticultural Society will meet at Nashville, January 25, 1912. Secretary and Treasurer, C. A. Keffer, Knoxville.

The State Nurserymen's Association will meet at Nashville, January 26, 1912. Secretary and Treasurer, C. M. Bentley, Knoxville.

The State Bee-keepers will meet at Nashville, January 27, 1912. Secretary and Treasurer, J. M. Buchanan, Franklin.

C. M. BENTLEY,

AN OPPORTUNITY FOR OKLAHOMA BEE-KEEPERS.

Those who are interested in bee-keeping in Oklahoma are not availing themselves of all their opportunities by any means. Those engaged in stock-raising, dairying, corn and cotton raising, etc., are constantly seeking and receiving information and advice from the Experiment Station at Stillwater, Okla.

Many who have taken up the keeping of bees during the last few years have met with success, and in particularly favored localities the results have frequently been an astonishing success. As a consequence many are being attracted to the busy bee as a pleasant and profitable avocation, and many are seeking information and advice.

There are many problems that are of particular importance to the bee-keepers of Oklahoma that have never as yet been worked out. It seems to have occurred to but few that it is within the province of the Experiment Station to take up these problems and work them out to a known conclusion.

Economical administration requires that only such work be taken up at the station as there is a demand for, or for which there is a necessity. There have been a few colonies of bees at the station for some years; but as there has been no experimentation authorized with them, we are none the wiser for their being there.

The relation of the honey-bee in Oklahoma to the growing of alfalfa seed is a very important matter, and its correct solution may mean thousands of

dollars to the alfalfa-growers. Those who may be called pioneers in the bee industry in this State have organized an association to assist in such work as this, but many bee-keepers are tardy in taking advantage of the opportunities offered.

This association meets at Stillwater, Okla., Jan. 17 and 18, 1912. Come, and let the station and the association know that you expect something from them.

PROGRAM OF SECOND ANNUAL MEETING, OKLAHOMA BEE-KEEPERS' ASSOCIATION, STILLWATER, OKLA., AT A. AND M. COLLEGE.

WEDNESDAY NIGHT, JAN. 17.

Address, illustrated with moving pictures and lantern slides, Prof. C. E. Sanborn.

THURSDAY, 9:00 A.M.

President's annual address.

Business meeting and election of officers.

1:30 P.M.

How location and pasturage affect successful bee-keeping, J. H. Burrage.

Why we should tie to the association, Geo. H. Coulson.

The use of feeders, G. E. Lemon.

What I think about foul brood, Arthur Rhoads.

Growth of the bee industry in Oklahoma, F. W. Van DeMark.

Question-box and general discussion.

N. FRED GARDINER.

Special Notices

By OUR BUSINESS MANAGER

NEW BOOKLET OF HONEY RECIPES.

Booklet No. 31 of our Bee-keepers' Ten-cent Library, entitled "The Use of Honey in Cooking," is a collection of about 100 tested recipes for making cakes, cookies, breads, etc., in which honey is used. In many ways this is the most complete and interesting honey-recipe book which has ever been prepared for wide distribution. The recipes were collected from bee-keepers and good cooks everywhere, and carefully tested under our personal supervision during the past year. Only those that have given entirely satisfactory results are included in this collection.

By way of illustration, "The Use of Honey in Cooking" has as a front cover a reproduction of a capped comb, and on the five following right-hand pages, opposite descriptive reading-matter, these illustrations appear in order: "The same comb that we show on cover with the cappings shaved off with a sharp knife, exposing the dripping honey in the cells;" "The uncapped combs being lowered into a honey-extractor;" "Honey-extractor in operation, showing how the combs are whirled rapidly and the honey thrown out of the cells by centrifugal force against the inside of the can;" "Drawing off the honey through the gate at the bottom of the extractor;" "The comb after being taken from the extractor, showing the cells are undisturbed and the comb as good as new, and ready to be filled again by the bees." Thus it will be seen that the complete process of the making of extracted honey is pictorially explained. This is a result which has long been sought, to correct the popular impression as to the manufacture of extracted honey by some contrary process.

Under the heading of "Food Value of Honey" an introductory of seven or eight pages appears, with a discussion of the subjects, "What is Honey?" "Different Flavors of Honey;" "Why Use Honey in Cooking?" "Where to Keep Honey;" "Honey Recipes;" "Caution Regarding the Use of Honey in Cooking."

The recipes are set in ten-point type of plain and readable face, and the booklet is printed on paper of very fine quality, with paper cover. There are 64 pages in all. While there will be a great demand for single copies of this booklet from our readers and friends throughout the world at the price of 10 cents per copy, we anticipate a still larger demand from bee-keepers, who will appreciate the advantage of using advertising matter of this high class in their honey-selling campaigns. We have printed copies of "The Use of Honey in Cooking" in

considerable quantities, and the back cover page has been left blank so that the advertisement of the local dealer or honey-distributor may be placed thereon. It is our desire to offer these booklets for sale in quantities, as desired, at the following prices, which include the printing of an advertisement or price list, with name and address upon the back cover. No other address will be given in your booklet.

100 copies of "The Use of Honey in Cooking," printed with your advertisement, - -	\$4.50
150 ditto, - - - - -	6.00
200 ditto, - - - - -	7.75
250 ditto, - - - - -	9.25
500 ditto, - - - - -	17.25
1000 ditto, - - - - -	25.00

Quotations on larger quantities upon request.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2½x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price \$14.00 each.

No. 0155, 2x10 round cell, medium-brood mill in old-style frame; fair condition. Price \$12.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price \$10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price \$12.00.

No. 0159, 2 x 10 round-cell medium-brood mill in good condition. Price \$15.00.

No. 0160, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0161, 2½ x 10 hexagonal light-brood mill in very good condition. Price \$18.00.

No. 0164, 2½ x 6 hexagonal thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0166, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0168, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0169, 2½ x 6 hexagonal extra-thin-super mill in extra good condition. Price \$15.00.

No. 0147, 2½ x 6 thin-super mill in extra good condition. Price \$15.00.

No. 0163, 2½ x 10 light-brood mill in good condition. Price \$17.00.

No. 0170, 2½ x 6 thin-super mill in very good condition. Price \$15.00.

No. 0172, 2½ x 6 thin-super mill in fair condition. Price \$11.00.

No. 0173, 2½ x 6 thin-super mill — defect near end of roll; extra good condition for four-inch foundation. Price \$12.00.

No. 0175, 2½ x 10 light-brood mill in good condition. Price \$16.00.

No. 0176, 2½ x 6 extra thin-super mill in fair condition. Price \$12.00.

No. 0177, 2½ x 10 medium-brood mill in extra good condition. Price \$17.00.

No. 0178, 2½ x 14 medium-brood mill in good condition. Price \$20.00.

No. 0179 2 x 10 medium-brood mill in good condition. Price \$16.00.

COLD-FRAME OR HOT-BED SASH.

GET OUR NEW FREE BOOK: How to Make and Run a Hot-bed

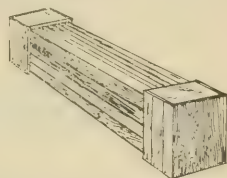
Some years ago we had a call for hot-bed sash and made up a small order. Our wood-working facilities being most complete we found it possible to manufacture sash of first-class quality at a price slightly under that charged elsewhere for an article of similar quality. Orders continued to come in occasionally, and we finally listed cold-frame or hot-bed sash in our catalog. Since then the demand has grown each year.

We make the sash of regular size, 3 ft. 4 in. by 6 ft. for four rows of glass 8 in. wide. Each sash holds 28 panes of glass, size 8 by 10 in. If any prefer larger glass we will furnish sash for three rows of 11-in. glass at the same price. Sash are made of cypress and are almost impervious to decay. Sash are usually shipped from here knocked down at a low rate of freight, and can be put together by anybody, as they are mortised and tenoned in the regular way. They are 1½ in. thick, outside bars about 2½ in. wide, and inside bars about 1½ in. The bars are grooved to slip the glass in place.

Each season we ship sash in carload lots to large seed-houses, and we have complimentary reports on their quality. It is both interesting and profitable work to maintain a hot-bed, and every one who has a garden spot should build a cold-frame. We have prepared a small book entitled "How to Make and Run a Hot-bed," which gives full directions for this work, and tells what crops are most easily grown. Copies are sent free upon request. Prices on sash are as follows:

One sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each; put together, 10 cts. each extra. Glass 8x10, just right for the above, \$2.50 per box of 90 lights; 5 boxes, \$2.30 each; 10 boxes, \$2.20 each. Prices of glass subject to change. Get our list price at time of ordering.

THE A. I. ROOT COMPANY,



Bundle of 5 sash, knocked down and crated for freight shipment.

Medina, Ohio

A Happy and Prosperous New Year

Our Wish to Southwestern Bee-keepers for 1912

MAKE up your mind to save all you can on your next season's supplies. Order from our new and complete stocks and get the benefit of early discount and freight saving. We are here to serve you promptly, efficiently and satisfactorily, and no other supply house in the great southwest is better equipped to meet your every requirement.

ANY BEESWAX TO SPARE?

We need considerable quantities of beeswax to keep our comb-foundation factory going—really require 50,000 pounds between now and May 1st next, and will pay 28 cts. cash or 30 cts in trade, per pound for average clean beeswax delivered in San Antonio. We have the largest and most complete equipment in the Southwest for the manufacture of **Weed New Process** foundation. Our machinery is all new and down to date, and every pound of foundation we sell is guaranteed to be absolutely perfect and will give entire satisfaction.

We Solicit the Patronage of Bee-keepers Everywhere, and Association Orders.

Remember! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **You save more** by ordering here, for freight to San Antonio has been paid by us.

January early-order discount	3 per cent	February early order discount	2 per cent
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Here's a special to clean up surplus stock of

Shipping-cases for Comb Honey.

10-inch 4-row 3-inch glass, per 100,	\$10.35
12-inch 2-row 3-inch glass, per 100,	6.65
16-inch 2-row 3-inch glass, per 100,	7.40
8-inch 3-row 2-inch glass, per 100,	6.75
6½-inch 3-row 2-inch glass, per 100,	6.75
7½-inch 4-row 2-inch glass, per 100,	6.75
7½-inch 3-row 2-inch glass, per 100,	6.75

Above prices hold good in lots of 50 or multiples thereof as they are put up in packages of 50.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

Madam, You'll Be Glad To Know Aunt Harriet

Aunt Harriet is a wholesome, sensible, sympathetic woman. She has a heart as big as all outdoors, and a very rare ability for advising and comforting others. She has never read "Three Weeks" and she doesn't know the first thing about Bridge. But she does know a whole lot about running a home successfully, raising children creditably and living with a husband happily. Aunt Harriet writes to three or four million readers every month through the

FARM JOURNAL *Unlike Any Other Paper*

gives them good advice and helps to solve their problems and smooth their troubles. You will be better for knowing her.

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in it for boys and girls and not a line in it that they shouldn't read. 750,000 homes are sweeter and better for its monthly visits.

Don't judge Farm Journal by any other paper you've ever seen. It is, and always has been, unlike any other paper. To prove this, and to make Aunt Harriet's gentle acquaintance, send a dollar for a five years' subscription, and if at any time you are not satisfied with your bargain, just tell us and we will send back every cent of your dollar not yet used.

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*If you order promptly, we will send, absolutely free,
"Poor Richard Revived," our splendid new Almanac for 1912.*

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**\$644 Buys Lumber
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We furnish all the materials to build any of these splendid modern homes, at the prices shown here.

We sell immense quantities of millwork and lumber of highest guaranteed quality, direct to actual users, at about 50 per cent saving over local dealers' prices.

We save our customers over a million dollars a year. We undersell everybody.



Plan No. 104. House has Reception Hall, Dining Room, Living Room, Kitchen, Pantry, three Bedrooms, Bathroom, ample Closets, Porch.



Plan No. 109. House has Reception Hall, Living Room, Dining Room, Kitchen, Pantry, four Bedrooms, Bathroom, large closets, 2 porches

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Complete House Within 48 Hours

We can ship all materials for a complete house within 48 hours after we receive the order. The houses shown here are the most popular plans ever designed. Ask for special circular showing floor plans, itemized list of materials and completed house. You can build any house at half usual cost if you buy material from us. We ship wherever railroads go. You save the architect's fee of \$100 if you build from our millwork and lumber.

We Include FREE OF COST

**Blue-Print Plans and
Specifications**

**\$790 Buys Lumber
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for this House**

**Write
for Grand Free**

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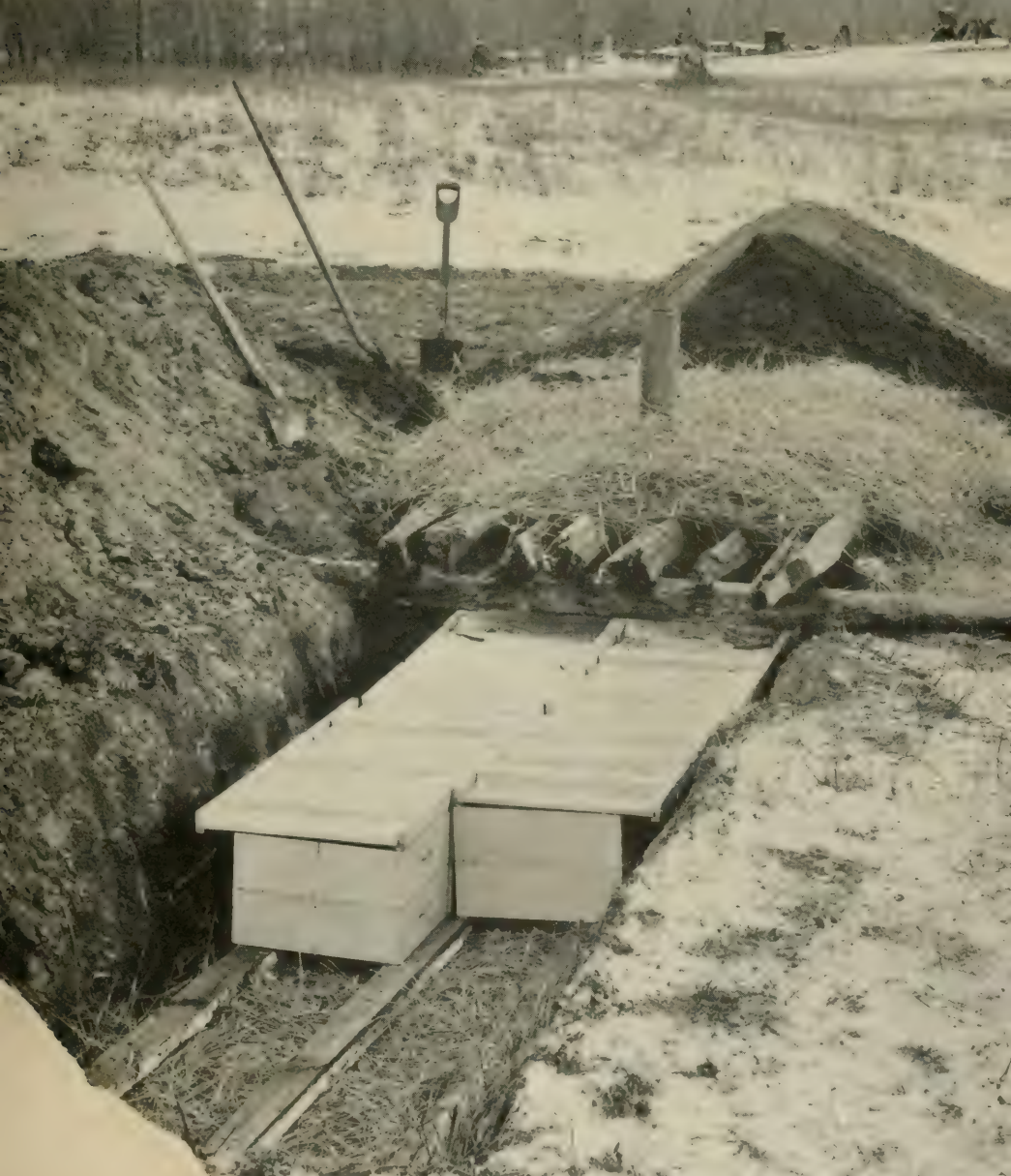
Plan No. 145. House has Reception Hall, Dining Room, Living Room, Kitchen, four Bedrooms, Bathroom, Attic, roomy Closets, Porch and Back Stoop.

Catalog offers over 5,000 building-material bargains. Quality, safe delivery, and satisfaction guaranteed or money refunded. Plan book shows 50 practical plans for houses, cottages, bungalows, etc. For Plan Book send 10c for postage and mailing

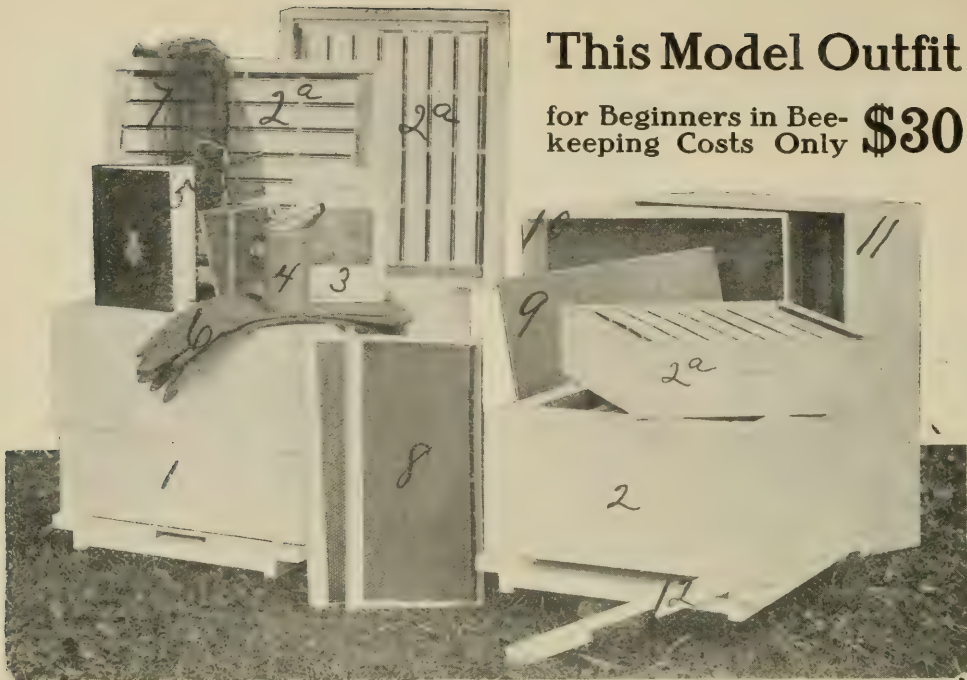
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2743 Case St., Davenport, Ia

Cleanings in Bee Culture



XL. JANUARY 15, 1912, NO. 2



This Model Outfit

for Beginners in Bee-keeping Costs Only **\$30**

Here is an illustration of a complete outfit for the man or woman who wants to make a start in bee-keeping in a small way. With every thing first-class, and ready for immediate use, and with bees of purest Italian strain (which are included), this outfit will afford a fine opportunity to study the work of these interesting little pets, and prepare for broader developments.

No reason at all why this single colony should not provide an extra swarm for the empty hive the very first season, and under right conditions there will be a nice honey-harvest, too.

Many people have wanted to keep bees, but have never made a start because of lack of facilities for protecting the hives sufficiently to winter the bees safely out of doors where the winters are severe. The double-walled hives suggested in this outfit are adapted for outdoor wintering, relieving the bee-keeper of the work of preparing the hives for winter; and for those who want to keep bees for pleasure as well as profit, we recommend this outfit most highly. Following is a list of articles included in the above outfit, numbered to correspond:

1—Full Colony of Bees in Ten-frame Double-walled Buckeye Hive, Complete with 28 Sections	\$14.50
Tested Italian Queen for Above	3.00
2—Empty Hive Complete for Hiving New Swarm	5.95
2A—2 Extra Comb-honey Supers	2.10
3—One Year's Subscription to Gleanings in Bee Culture (large semi-monthly, illustrated)	1.00
4—Standard Root Smoker	.85
5—A B C of Bee Culture	1.50
6—Pair of Bee-gloves	.50
7—No. 2 Bee-veil	.60

No. 8 shows two brood-frames with full sheets of foundation from which the bees build honey-comb. There are ten such frames in each of the hives. No. 9 is a super-cover. No. 10 is a tray which is filled with chaff or other packing material to afford protection in winter. No. 11 is the hive-cover or roof which telescopes the hive-body as shown in No. 1.

Special Offer { Delivered at any express office in U. S. east of Mississippi River and north of Ohio River **\$30.00**

For delivery to points outside of the above free limit, we will make terms on application.

The investment here is a little more than for some of the other outfits we furnish; but if you expect to keep a few bees only, just for recreation or to make enough money for your own table, you will not need to make any further purchases for some time, except a few extra sections the second season. We take special pains to put up these outfits in such fine shape that the bees are sure to reach destination in prime condition. In these hives the bees will almost take care of themselves, summer and winter.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Send your order to the nearest office.

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G. B. 112

Enclosed find draft for \$30.00 for which please send me Outfit No. 6, as listed above. I understand that you guarantee safe arrival and prepay all charges, if north of Ohio River and east of Mississippi River.

Name.....
Town.....
County.....State.....

Bee-Hives Thirty Years Old.

Bee-hives which were made by Mr. Falconer in the early eighties have been in constant use ever since, and are now doing good service in the apiary of one of our foremen. These hives are "**falcon**" double-walled hives, and have withstood for these many years the rigor of the Chautauqua winters. And to-day these thirty-year-old hives are in excellent shape, and good for the battle of as many more winters.

Is it any wonder that Mr. Falconer's hives have been renowned for their good material and good workmanship? It is on this solid foundation of substantial hives and perfect goods that our business has been built.

For nearly forty years we have directed our work along lines of progress in constructing better hives, in perfecting machinery specially adapted for hive manufacture, and, as never before, we are making the most substantial, the best-fitting hive of the clearest lumber ever put on the market.

White-Pine Lumber for 1912 Hives.

We have been fortunate in securing the best white pine for hives which it has been our pleasure to offer to bee-keepers for some years. In 1912 we will start a horde of hives on their journey of thirty to fifty years of useful service.

Do you want to own hives which will give you thirty years' service?

See that you get "**falcon**" hives. A catalog, and prices on your 1912 requirements, will be mailed upon request.

Order Early.

Don't delay this important matter of making up your order immediately. "I don't know how my bees will come out of the winter" is an excuse often given. You, Mr. Late-Orderer, have known instances when you have lost a good many dollars in honey and swarms, and experienced much anxious chasing back and forth to the depot for the "Rush Order." Why not start a bank account in the form of a few extra hives, a few extra sections, and a little extra foundation? It will pay larger interest than any savings bank in the land. Buy this extra stock this year, and always thereafter you will have an emergency big-honey-year extra supply to fall back on.

Why not start out right in 1912? As an inducement for you to be thrifty and beforehand we offer at all "**FALCON**" dealers in January an extra three per cent discount from catalog prices; two per cent in February, the last month this inducement is offered. And, above all, don't forget that, when you buy, you want "thirty-year" hives—you want "**FALCON**" hives, "**FALCON**" foundation made in our plant by our special process for nearly forty years, and other "**FALCON**" quality supplies.

"falcon" Distributors in the United States.

To enable our ever rapidly increasing number of customers in all States to get our supplies quickly with only carload freight rates to pay, we have established distributors in all parts of this country. See January 1st **GLEANINGS** for list.

Hundreds of other dealers in the United States handle "**FALCON**" goods in smaller quantities; still they have a full assortment, and can give your wants prompt attention. If you do not know the name of the dealer in your section, send us a list of your wants for quotation from our nearest location—delivered if you wish—less early-order discount.

Send for a **RED CATALOG**.

Early-order discount at all "**FALCON**" dealers—January, 3 per cent; February, 2 per cent.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

15 BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30.
Boston, Jan. 1. **BLAKE-LEE CO.**

COLUMBUS.—We quote fancy white comb at 18; No. 1, 17; No. 2, 13. Receipts are very light, and demand good for fancy and No. 1 white comb. The market is very dull on amber and No. 2.
Columbus, Jan. 5. **THE EVANS & TURNER CO.**

SCHENECTADY.—The honey market is very quiet; and while there is no great amount on hand, there is plenty to fill the present demand with the exception of white clover. Extracted is moving slowly, but we expect an improvement before long in dark grades. There is no change in prices.
Schenectady, Jan. 2. **CHAS. MACCULLOCH.**

INDIANAPOLIS.—Demand is good for best grades of comb and extracted honey. White comb sells for 18 cts. in ten-case lots, finding ready sale. Amber grades are in slow demand at much lower prices. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 31 cts. per lb.
Indianapolis, Jan. 4. **WALTER S. POWDER.**

CHICAGO.—The sales of honey, both comb and extracted, during December, were fair, but not as large as in November. Stocks here are not especially heavy; and as January is usually a good month in which to sell honey, we expect a fair volume of trade. Prices range from 17 to 18 cts. for fancy comb, and 1 to 5 cts. per lb. less for the amber grades. Extracted brings from 7 to 8 for the amber, and 8 to 9 for the white, according to kind and color. Beeswax is steady at 30 to 32.
Chicago, Jan. 2. **R. A. BURNETT CO.**

LIVERPOOL.—Since our last report there has been a steady retail demand for honey, and Chilian was sold at \$5.28 to \$8.16 per cwt.; fine Californian at \$10.92; Jamaican at \$6.72 to \$7.68. Other qualities are nominally worth as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. There is a steady demand for beeswax. Late sales have been, Chilian at \$33.88 to \$38.72 per cwt. Other descriptions are quoted nominally: African, \$32.64 to \$34.48; American, \$37.72; West Indian, \$27.80 to \$36.28.
Liverpool, Dec. 27. **TAYLOR & CO.**

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.,** gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEEWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

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CININNATI

Some things in addition to service, prompt and satisfactory shipments, and a real desire to please you, that come from the central point of distribution.

Root's Supplies—new and clean, and of the finest quality. New hives, new foundation, new sections—everything fresh from the factory in carload shipments.

Early-order cash discount. Three per cent for January; two per cent for February—a worthwhile saving to which you are entitled. Don't fail to get your order in at once.

Saving on freight or express. By buying here, part of the cost of transportation is borne by us. You pay only from Cincinnati. This is quite an item on large orders, and our patrons are coming to appreciate it more and more.

Be Sure to Ask for our new catalog if you do not receive it soon

Just bear these facts in mind, and begin right by ordering your season's supplies from

C. H. W. Weber & Co.
2146 Central Ave. Cincinnati, Ohio

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Established 1885

We carry an up-to-date
line of

Bee-keepers' Supplies.

At this season of the year we give the usual customary early-order discounts.

If you can figure your wants now to buy early and get the benefit of lowest prices, don't fail to consult us.

We have a line of supplies that are just superb—nothing to fear as to quality. Send for our large catalog. It's free.

Beeswax taken in exchange for supplies or cash.

We are 75 miles west of St. Louis. Shipping facilities good.

JOHN NEBEL & SON SUPPLY CO.,

High Hill, Montg. Co., Mo.

Honey Markets, continued from page 2.

CINCINNATI.—The market on comb has fallen off somewhat, the only demand being for fancy. White is selling in a retail way at \$4.00; to jobbers, at \$3.60 to \$3.75, according to quantity. White extracted, extra, in 60-lb. cans, brings 10 cts.; light-amber ditto, 8%; amber in barrels, 7 to 7½. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & Co.

Cincinnati, Ohio, Dec. 28.

DENVER.—The demand for honey is now improving, especially comb, and better prices are ruling than before the holidays. Our stock of comb honey is light; and any shipments made to us can be turned soon, if good white stock, free from granulation. We quote prices in a jobbing way, strictly No. 1 white, per case, \$3.60; No. 1 light amber, \$3.35; No. 2, \$3.15. We have a large stock of extracted honey of fine quality on which we are making the following jobbing prices: White extracted, 9; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, Jan. 5. F. Rauchfuss, Manager.

NEW YORK.—The market remains in about the same condition as stated in our last report. Comb honey is well cleaned up, and there is a good demand for choice white stock. Extracted, however, is rather plentiful, and the demand has fallen off considerably during the past four weeks. California white and water-white sage are in better demand than any other grades. Alfalfa, light amber and amber, are rather neglected; and in large quantities prices will have to be shaded in order to make sales. We quote California water-white at 9½ to 10; California white sage, 9; California sage, light amber, 8 to 8½; alfalfa, light amber, 7 to 7½; alfalfa amber, 7; buckwheat and mixed, 6½ to 7. Beeswax is steady at 30 to 31.

New York, Jan. 4. HILDRETH & SEGELKEN.

APIARIAN SUPPLIES AND BEES.

Before placing your order let us quote you on what you need. A very liberal discount on early orders. Catalogue free. New York State amber honey 8½ cents per lb.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aparios, Glen Cove, L. I.

Bee-keeper's Supplies

Sold in Central Michigan at let-live prices. Send for my 1912 prices and be convinced.

W. D. SOPER,

Jackson, Mich.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments solicited. Established 1875.

CHICAGO.—Trade on both comb and extracted honey is still very much neglected, and the demand is quite light. There certainly should be a reaction soon. We quote No. 1 white comb honey, packed in 24-section cases, 16 to 17; No. 2 white and light amber, 14 to 16; medium and dark amber, 2 to 3 cts. less; white extracted, 9 to 10; light amber, 7 to 8. Bright pure beeswax is firm at 30 to 32.

Chicago, Jan. 8.

S. T. FISH & Co.

ZANESVILLE.—The demand for honey, while not brisk, is not far from normal for the season, and the supply seems to balance the demand. Prices are about stationary at 20 cts. for best white comb in single-case lots, and 10½ to 12 for extracted in five-gallon cans. The chief demand at present for extracted is for that in small glass packages. Producers are receiving for good clean beeswax 29 cts. in cash or 31 in exchange for bee-supplies.

Zanesville, O., Jan. 3.

E. W. PEIRCE.

ST. LOUIS.—We have no improvement to report in our honey market. The trade is very slow, and has been for the last month. The prices we quote are all more or less nominal. We quote fancy white comb honey at 17 to 18; No. 1, 15 to 16; light amber, 14 to 15; dark, 10 to 12. Broken and leaking honey sells at much less. Extracted, white clover, brings 8½ to 9; white alfalfa, 8½ to 9; light-amber, Southern, 8 to 8½, all in five-gallon cans. California light-amber honey brings 8½; Southern, in barrels and half-barrels, 7 to 7½ for light amber; dark, 6 to 6½. Beeswax, prime, 30; impure and inferior, less.

Jan. 10.

R. HARTMANN PRODUCE CO.

St. Louis, Mo.

BUFFALO.—The supply of good white-clover comb honey is light, and is selling well at 16 to 17. There is considerable dark and mixed honey around, and moving slowly at 12 to 14. Probably it will soon sell a little lower in order to keep it selling. Extracted honey is in fair supply, and selling slow—white, 8 to 9; dark, 7 to 7½. This time of year is very dull, and we do not expect honey to move well for some time. Shipments at this time of the year are, as rule, undesirable in quality, for bee-men often work off the best grades and send the rest to market to be cleaned up by the commission man.

Buffalo, N. Y., Jan. 9.

W. C. TOWNSEND.

CINCINNATI.—The condition of the honey market reminds one of a ship that is beached and must await the high tide to move it. It is useless to offer any inducements to make sales; and to cut prices would not only be a loss, owing to the small profit, but would ruin the conditions. Nevertheless, we do not overlook opportunities to make sales. For the fancy grades of table honey we are getting from 10 to 11 cts. per lb. in 60-lb. cans; and for amber honey of the better grades from 8 to 9; for the low grades, 6 to 7, according to the quality and quantity purchased. These are our selling prices. Comb honey is moving somewhat slower than for some time back, and we are now getting from \$3.75 to \$4.00 a case. For choice bright yellow beeswax we are paying 30 cts. per lb., delivered here.

Cincinnati, Jan. 8.

THE FRED W. MUTH CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

Issued Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.

SPACE RATES. To be used in one issue: One-fourth page, \$12.50; one-half page, \$25.00; one page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2 $\frac{3}{4}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BEE-SUPPLY BARGAINS....



All Exhibition and Sample-room Hives, Extractors, and other Bee Fixtures are being offered at reduced prices in order to make room for new goods. Better write to-day and save from ten to fifteen per cent. **FIVE PER CENT SPECIAL DISCOUNT** is allowed on all orders for new stock purchased from us this month for immediate or future shipment, so send list of your requirements if you want to purchase Bee Supplies, the best that are made, at absolutely rock-bottom prices.

Do not forget our Bee-Book, 'How to Make Money in Bees,' which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.

BLANKE MFG. & SUPPLY CO.

Successors to
Blanke & Hawk Supply Co.

Blanke Building

St. Louis, Missouri



When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

Boston Is the Shipping Center of New England

Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. Send for catalog.

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

Clark & Pike

LANDSCAPE ENGINEERS

WILLOUGHBY, OHIO

FRUIT-GROWING AND BEE-KEEPING.

EVERY one interested in bees should also be interested in fruit-growing. FRUIT-GROWING is profitable. One grower in the South netted \$35,000 on 100 acres in peaches this season. Another netted \$100,000 on apples. Read the *Southern Fruit Grower*, and learn all about this profitable industry in the South. Contains from 32 to 40 pages per month. Bound to interest you. Price 50 cents per year, but will be sent six months on trial for 15 cents if you mention this paper. Send to-day to

The Southern Fruit Grower, Dept. B. C., Chattanooga, Tenn.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for full discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

FIRST LESSONS IN BEE-KEEPING

Just the bee-book for beginners. All about bee-keeping and producing the finest honey. It has nearly 200 pages and over 150 illustrations. Revised by Dadant, one of the highest authorities on bees in both America and Europe. Most unique and original cover, showing honey-comb, etc. Sent by mail for 50 cents; or with the *American Bee Journal* for one year—both for only \$1.00—the price of the *Journal alone*, which is now over 50 years old. It is an authority on bees, and the most successful honey-producers write for it every month. It has a department for Women, and also Answers Questions for beginners.

Send 2-cent stamp for sample copy; or, better send \$1.00 today and get both book and *Journal* for one year. Address,

George W. York & Co., 117 N. Jefferson St., Chicago, Ill.



New Stock

We are now receiving a stock of goods for next season.

If you can place your order for goods for use next season we shall be glad to have your order.

Catalogs for 1912 are not yet out; but you can use the one you have of 1911. During the month of November there is a discount of 5 per cent. December, 4 per cent.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

"Griggs Saves You Freight."

Toledo

**Is the Best Point to
Get Goods Quick.**

Why not start the new year by sending your order for next season's goods to **GRIGGS?**

3 Per Cent Discount

in January. Take advantage of this and get your goods early, getting the selection of all new goods. Our 1912 stock is complete.

Honey and Beeswax

wanted in exchange for supplies. Send for Catalog. It is free

S. J. GRIGGS & CO.,

erie St. near Monroe, TOLEDO, O.

"Griggs the King-Bee."

Are You a Locomotive or a Caboose?

These startling words greeted me from a piece of advertising matter that recently came to my desk. It suggested a **train** of thought.

There are two kinds of bee-keepers—**locomotives** and **caboosees**. The locomotive bee-keeper is always ahead. He informs himself. He has the **A B C** and **X Y Z** of Bee Culture. He takes **GLEANINGS IN BEE CULTURE**. He supplements the knowledge thus acquired with actual painstaking work among the bees. He masters the details, with the result that he always gets honey—and money. He does not wait until he has a swarm hanging on a tree before he orders hives, nor until the honey-flow has actually begun before securing sections and foundation. He does not buy cheap, inferior supplies and then lose half his crop waiting for them to come. He saves on the cost of his supplies by sending his order to **Peirce** for **ROOT'S GOODS** during the fall and winter, thus getting the early-order discount.

The other kind of bee-keeper is a **caboose**. Which are You?

January discount, 3 per cent. Catalog for the asking.

EDMUND W. PEIRCE

136 West Main St.,

ZANESVILLE, O.

We have an overstock of E covers, both 8 and 10 frame. We will offer these at a low figure. If you will tell us how many you can use, we will quote prices by return mail.

Discount for January Orders is 4 Per Cent.

Are you interested in a combination offer of **GLEANINGS** with other magazines? If so, send for our list. We can make you low rates

M. H. Hunt & Son
Lansing, Mich.
Opposite Lake Shore Depot

How to Keep Bees

By
Anna Botsford Comstock

A most entertaining and practical book for the beginner. Tells a beginner's experiences in a way to help other beginners.

Price \$1.10 postpaid.

The A. I. Root Co.,
Medina, Ohio.

Save from 25c to 50c on the \$

By getting a copy of our Free Book

It will save you money on every magazine or paper you read.

This book contains 64 pages; gives the descriptions, prices, club rates, etc., of hundreds of periodicals and poultry books, and costs you nothing.

Send your name and address, and ask for our agency catalog, and it will be sent you at once, postpaid.

American Subscription Agency
540 So. Dearborn St., Chicago, Illinois

ONE OF OUR OFFERS:

American Poultry Journal, 1 year, 50c	} ALL FOR  \$1.00 
Animal Husbandry . . . 1 year, 50c	
Ranch and Range . . . 1 year, \$1	

Take advantage of this offer now if you want to, but don't neglect to send for free book which contains many more as good—some better

Poultrymen....

Who Seek a Market for

SURPLUS.... OR EGGS FOR
.....STOCK HATCHING

Should not overlook the
Classified Advertising
Department of

Gleanings in Bee Culture

The close alliance of these two industries makes this a profitable medium for poultry advertisers.

The single-insertion rate is 25 cents per line of about seven words, but there are liberal discounts for regular advertisers, as explained in a new booklet—"WHY Gleanings in Bee Culture Pays People who Advertise Poultry, and WHAT it Costs to Reach its Readers." Ask for this booklet—it is free.

BANKING BY MAIL**4%**

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

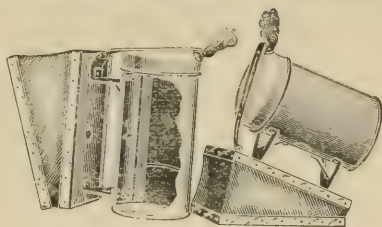
Write to-day for booklet explaining our convenient banking-by-mail system.

Resources \$1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

DANZENBAKER SMOKERS**PRIZE****VICTOR**

(Patented October 3, 1905; June 4, 1907.)

AWARDED HIGHEST PRIZES, GOLD MEDALS at St. Louis Expo'n 1904; Jamestown Expo'n 1907 "ON ITS MERITS" over all others.

It is the **neatest, cleanest, coolest, lightest, and strongest.** The vertical grate with inside lining forms a double-wall fire-cup, keeping it **cool for safe handling. DOUBLES DURABILITY,** giving **cool smoke—AN INDISPENSABLE FEATURE** in a first-class smoker. It was the first successful valveless bellows protected by patents.

The honors won, the commendations of pleased purchasers in seven years, justify **guaranteeing full satisfaction.**

If your dealer does not keep it, send your address for one **FREE**, "without money or price" for trial orders.

Prize $3\frac{3}{4} \times 7\frac{1}{2}$ in. cup \$1.00; by mail, \$1.25
Victor $3\frac{3}{4} \times 6$ in. cup .80; by mail, 1.00
Victor with Gleanings 1 yr. 1.50

Free catalogs for you and B-friends with prices of Best hives, supers, sections and B-supplies; also bees and queens—and hives **FREE** for a share of the honey-crop.

F. Danzenbaker, Nos. 68-70 Martin Lane, Norfolk, Va.

COLD-FRAME OR HOT-BED SASH.

GET OUR NEW FREE BOOK: How to Make and Run a Hot-bed

Some years ago we had a call for hot-bed sash and made up a small order. Our wood-working facilities being most complete we found it possible to manufacture sash of first-class quality at a price slightly under that charged elsewhere for an article of similar quality. Orders continued to come in occasionally, and we finally listed cold-frame or hot-bed sash in our catalog. Since then the demand has grown each year.

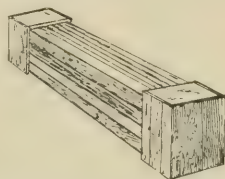
We make the sash of regular size, 3 ft. 4 in. by 6 ft. for four rows of glass 8 in. wide. Each sash holds 28 panes of glass, size 8 by 10 in. If any prefer larger glass we will furnish sash for three rows of 11-in. glass at the same price. Sash are made of cypress and are almost impervious to decay. Sash are usually shipped from here knocked down at a low rate of freight, and can be put together by anybody, as they are mortised and tenoned in the regular way. They are $1\frac{3}{8}$ in. thick, outside bars about $2\frac{1}{2}$ in. wide, and inside bars about $1\frac{1}{2}$ in. The bars are grooved to slip the glass in place.

Each season we ship sash in carload lots to large seed-houses, and we have complimentary reports on their quality. It is both interesting and profitable work to maintain a hot-bed, and every one who has a garden spot should build a cold-frame. We have prepared a small book entitled "How to

Single sash set up ready to use.

Make and Run a Hot-bed," which gives full directions for this work, and tells what crops are most easily grown. Copies are sent free upon request. Prices on sash are as follows:

One sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each; put together, 10 cts. each extra. Glass 8x10, just right for the above, \$2.50 per box of 90 lights; 5 boxes, \$2.30 each; 10 boxes, \$2.20 each. Prices of glass subject to change. Get our list price at time of ordering.



Bundle of 5 sash, knocked down and crated for freight shipment.

THE A. I. ROOT COMPANY,

Medina, Ohio

A New Year's Resolution For the Year 1912.

I will keep more bees.

I will devote more time to my bees.

I will give more thought to my bees.

I will co-operate with the local and national organizations.

I will use Lewis Beeware.

**The New 1912 Lewis Beeware Catalog
Is Now Ready For You.**

The Best We Have Ever Issued.

**Entirely Rewritten With New Illustrations.
More Complete and Comprehensive Than Ever.**

If you are not on our regular mailing list, send for one at once—it is free for the asking.

**30 Distributing Houses Sell Lewis
Beeware Through This Catalog.**

Ask for the name of the nearest one.

Lewis Beeware is Success Insurance.

G. B. Lewis Company, Manufacturers of Beeware, Watertown, Wis.

**Water White
Alfalfa Honey**

**Light Amber
Alfalfa Honey**

**Light Amber
Fall Honey**

In any size quantities, in any size packages. If your honey crop is short, and you want to supply your regular trade, write to us for prices. We are sure that we can supply what you want at prices you can pay. Five cents for a liberal sample of any kind desired. . .

We want your BEESWAX to work into

DADANT'S FOUNDATION

or will pay cash for it in exchange for goods

DADANT & SONS, Hamilton, Ill.

"The Corning Egg Farm Book

By Corning Himself."

Not a Dream of Some Would-be Successful Poultryman; No Theoretical Possibilities; But Actual Accomplished Facts.

The Straight-Forward Story of the Building up, in Five and a Half Years, of the Greatest Egg Farm in the World, from a start with only 30 Hens.

The Corning Method developed the Strain of Single Comb White Leghorns *which cannot be surpassed.*

The Corning Egg Farm Book tells in detail everything about this Farm, from the purchase of the acreage, at Bound Brook, N. J., in 1906, right up to date.

FEEDING FOR EGGS

The marvelous discoveries and far-reaching developments in feeding for eggs, which have been made on the Corning Egg Farm during the last two years, can be found only in The Corning Egg Farm Book, because no one has gone into feeding for eggs so thoroughly and so successfully as Corning.

It matters not how successful you may be, the possession of the knowledge you will obtain by studying The Corning Egg Farm Book will enable you to reap a greater profit, year after year, than ever before.



The Corning Method brings success to the man who keeps a few hens, in the back yard, just as surely as to the man who keeps hens by the hundreds or thousands.



**The Corning Egg Farm Has Now
Surpassed \$6.41 Per Hen Per Year**



and The Corning Egg Farm Book by Corning Himself tells how you can do the same.

How to build the Corning Houses, detailed drawings, lists of required materials, with full instructions, are in the Book.

Remember, Corning designed and built all these houses. No builder, architect, or contractor, could give you such plans, as only Corning knows.

The chapter covering the handling of birds on Colony Range will help many a man to put more pullets into his laying house than he has ever done before.

Mortality in raising chicks can be materially lessened by following the instructions laid down in The Corning Egg Farm Book.

This book is a real book, not a cheap paper pamphlet. It is bound in rich blue cloth stamped in gold, with the Corning Strain Utility Cockerel in colors. 216 pages of clear type on fine paper. A Corning Cockerel, painted by one of New York's foremost artists, in life colors, is the Frontispiece. The pictures, 35 in number, were taken by a photographer of reputation. They are half-tones, full page and larger. 39 pen-and-ink drawings cover plans of the buildings, etc.

No one else can offer you the equivalent of The Corning Egg Farm Book at any price, for the pertinent reason that the knowledge given in plain language, understandable and usable by any one, has been thought out, worked out, and perfected by the Cornings. No experiments are left for others. The following of the Corning Method, as told in this Book, means assured success and profit. Price \$1 00, postpaid, to any address.

THE CORNING EGG FARM, BOUND BROOK, N. J.

Get It From the Factory Direct



KITSELMAN FENCE

Made from thoroughly Galvanized Open Hearth steel wire. Our free Catalog shows 100 styles and heights of hog, farm and poultry fence at from

11¹/₂ Cents a Rod Up

Sold on 30 days free trial. If not satisfied return it at our expense and we will refund your money. 30-rod spool of Ideal galvanized

BARBED WIRE \$1.40

Write today for large Free Catalogue.

KITSELMAN BROS. Box 21 Muncie, Indiana.

GET YOUR SHARE

of the enormous Poultry and Egg Profits. Start *now*. Make \$1000 to \$5000 extra each year. Experience not necessary.

Stahl's Excelsior incubator

gets largest hatches at least cost. Has many important exclusive features.

Write TODAY for my FREE BOOK.

GEO. H. STAHL, 423 Oak Street, Quincy, Ill.



"100 Eggs-98 Chicks"



Write for FREE Book telling how to obtain same results. Book pictures and describes the Galva Hen—a galvanized steel incubator that will not crack, warp or rot. Contains other valuable information. Get it.

QUINCY HATCHERY CO.
27 York St., Quincy, Ill.

Write for Catalog Today

THE "BEST" LIGHT



One burner will give as much light as ten ordinary oil lamps; six 16 candle power electric bulbs; six 16 candle power gas jets or 6 acetylene gas jets. Costs 2 cts. per week. Produces a pure, white, steady, safe light. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

STRONGEST FENCE MADE

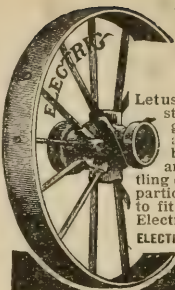


26-inch Hog Fence,.....15c.
47-inch Farm Fence,.....23¹/₂c.
60-inch Poultry Fence.....30c.
80-rod spool Barb Wire, \$1.40

Many styles and heights. Our large Free Catalog contains fence information you should have.

COILED SPRING FENCE CO. Box 101 Winchester, Ind.

New Wheels for the Old Wagon



Let us fit your old wagon with "Electric" steel wheels and make it strong and good as new. Another wagon life and a real handy wagon just by buying wheels. Broad tires, never any resetting, no drying apart, rattling or coming loose. Free book gives particulars and shows how it pays big to fit up old wagons with the long-life Electric Steel Wheels. Write for copy.

ELECTRIC WHEEL CO., BOX 23, QUINCY, ILL.

Electric

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier, profits larger.

MANN'S LATEST MODEL Bone Cutter

Cuts all bone with adhering meat and gristle. Never clogs. 10 Days' Free Trial. No money in advance.

Send Today for Free Book.

F. W. Mann Co., Box 37, Milford, Mass.



"KANT-KLOG" SPRAYERS

Something New

Gets twice the results with same labor and fluid.

Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted. Booklet Free.

Rochester Spray Pump Co. 207 Broadway
Rochester, N. Y.



Latest Book "Profitable Poultry,"

finest published, 120 pages of practical facts, 160 beautiful half tones. Tells how to breed, hatch, feed and market to make big money. Tells about big poultry farm. 45 pure-bred varieties. Beautiful, hardy and money makers. We start you right. Lowest prices on fowls, eggs, incubators, etc., sent for 5c.

Berry's Poultry Farm, Box 97, Clarinda, Iowa.



IDEAL ALUMINUM LEG BAND

To Mark Chickens
CHEAPEST AND BEST

12 for 15c; 25-20c; 50-35c; 100-60c.
Sample Band Mailed for 2c Stamp.
Frank Myers, Mfr. Box 69, Freeport, Ill.



4 BUGGY WHEELS

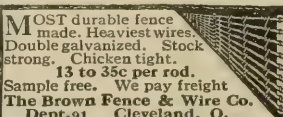
With Rubber Tires \$18.45. Your Wheels Rubbered, \$10.30. 1 make wheels 3 1/2 to 4 in. tread. Tops, \$6.50, Shafts, 1.20; Repair Wheels, \$3.95; Axles \$2.25; Wagon Umbrella free. Buy direct. Ask for Catalog 47.

SPLIT HICKORY WHEEL CO., 547 F St., Cincinnati, Ohio



BROWN FENCE

MOST durable fence made. Heaviest wires. Double galvanized. Stock strong. Chicken tight. 13 to 35c per rod. Sample free. We pay freight The Brown Fence & Wire Co. Dept. 91 Cleveland, O.



GRAY PRINTING CO., Postoria, O.

Make ENGRAVINGS for GLEANINGS

Phelps

Book Ready

BESURE to write a postal to Phelps for his big show room book of 1912 buggies — all made-to-order and over 125 to choose from. The biggest selection in America.



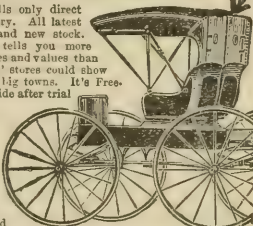
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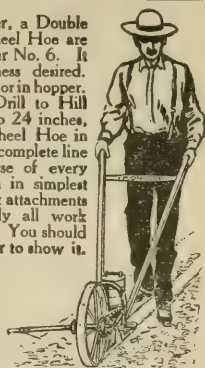
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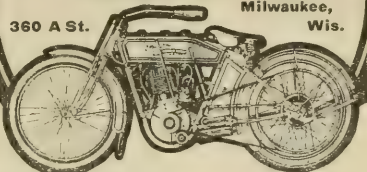
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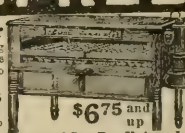
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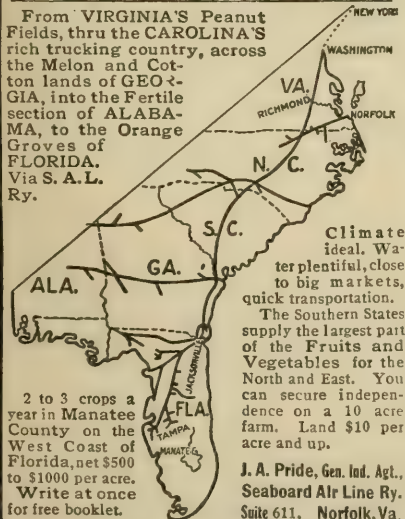
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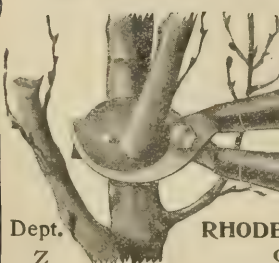


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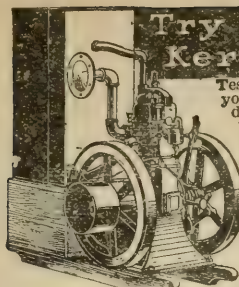


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Select tested, March.
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stand up against highest priced hatchers, and make biggest poultry profits for owners. Write me. My book is better than ever. My offer will please you. My machines, my experience and help will insure your success.

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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Alfalfa sweet-clover honey, 9000 lbs. at 7½ cents. Sample 2 cts. T. H. WAALF, Nampa, Ida.

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COMB HONEY.—4 x 5 x 1½ sections, gathered from the famous Spanish needie; capped even, and light in color; fine quality, grading No. 1 to fancy; and stored in dry heated room it improves constantly. Price, while it lasts, \$3.00 per case of 20 sections—nine-case crates. Safe delivery guaranteed. Extracted, in 60-lb. cans. Write for prices. Orders filled promptly. F. B. CAVANAGH, Hebron, Ind.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 199 S. Water St., Chicago.

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A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

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Bees and Queens

WANTED.—300 or 400 colonies of bees in the Southwest. A. E. SCHELLHORN, Lecompton, Kan.

WANTED.—To buy 300 hives of bees in the Standard hive of eight or ten frames, with extracting-supers. State price in first letter.
DAVID J. GRABILL, 618 13th St., Modesto, Cal.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, \$1.00; tested, \$1.50; select tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, \$1.00; select tested, \$3.00; also nuclei and full colonies. See for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovett., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

My queens will be ready to mail May 1, 1912; will rear from A. I. Root's, Jno. M. Davis', and J. P. Moore's choice breeders. Book your orders now, and get your queens early and of quality. Three-banded and also Golden for sale, 1912.
H. B. MURRAY, Liberty, N. C.

For delivery on Feb. 20 and later I offer 400 three-frame nuclei with tested Italian queen for \$3.50 each; untested queens for 75 cts. each. Satisfaction guaranteed. My strain of Italian bees are developed honey-gatherers, the result of 11 years' record-keeping and selecting. No bee disease has ever been near my bees.
W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

Will trade bee-supplies or extractor for air-cooled gasoline-motor or light runabout car.
WILLIAM N. MILLER, Dodgeville, Wis.

WANTED.—To exchange an aeroplane for a small power combination saw or planer, or other article.
W. S. AMMON, Reading, Pa.

WANTED.—To exchange Root bee-supplies, either for money or honey. January cash discount, 3 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To lease for this year 200 colonies of bees—Italian or German brown; must be free from disease, and in good hives.
S. T. LANCASTER, Tyson, Ida.

WANTED.—Bees in Florida, Georgia, or South Carolina, in frame or box hives. Give full particulars and lowest price. Address
"BEES," Box 197, Augusta, Ga.

Three-months' trial for 15 cts. for the bee-journal that "grandpa" can read. Large type, New cover design. Eight extra pages. Write
THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

WANTED.—To correspond with bee-keepers in Huron, Tuscola, Sanilac, and St. Clair counties, Michigan. We have a good proposition to submit to you. Address
Box B, care of GLEANINGS IN BEE CULTURE,
Medina, Ohio.

WANTED.—90 colonies of Italian bees for spring delivery in Southern Idaho. Must be guaranteed free from disease, in good standard hives, Hoffman frames, on straight full worker combs—in fact, strictly first class. State full particulars and lowest cash price in first letter.
Box 56787, GLEANINGS IN BEE CULTURE, Medina, O.

Help Wanted

WANTED.—Young man to work with bees and poultry, season of 1912. Must be temperate, and not afraid of work.
E. L. LANE,
Trumansburg, N. Y.

WANTED.—Assistant apiarist. Must be steady, honest, and willing to go to Colorado or Montana as needed.
THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

WANTED.—Unmarried man with experience in queen-rearing and honey production. Steady employment, with board furnished, at once. State experience, salary wanted, etc.
W. D. ACHORD, Fitzpatrick, Ala.

Position Wanted

WANTED.—A young man of good habits, and an experienced queen-breeder, desires a position in a first-class queen-rearing apiary. State wages and conditions in first letter. Will take part queens in lieu of wages.
H. C. SHORT, Rt. 2, Winchester, O.

Miscellaneous

Coins, stamps, curios for sale. Look up my last ad't. Catalog free. R. CHAPIN, New Berlin, N. Y.

Is your thermometer right? Can you test it? The January Review tells you how. Three months for 15 cts.
THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

Poultry

WHITE ORPINGTONS.—Fine, healthy, young stock for sale. Eggs and baby chicks from prize stock.
PIPER'S POULTRY PLANT, Elkhville, Ill.

April hatch Italian Runner ducks, fawn and white; \$2.00 each; \$3.50 a pair; \$5.00 per trio. White-egg strain.
KENT JENNINGS, Mt. Gilead, Ohio.

S. C. W. Leghorn and S. C. R. I. Red chicks at \$10 to \$20 per 100; also a few W. Leghorn and W. Wyandotte hens at \$10 per dozen. Satisfaction guaranteed.
C. H. ZURBURG, Rt. 1, Topeka, Ill.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.
C. O. YOST, Rt. 4, Winchester, Ind.

Pigeons and Pet Stock

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty. Seventeen years' experience. Large illustrated matter free.

PROVIDENCE SQUAB CO., Providence, R. I.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices.

The Washington State Bee-keepers' Association will hold its annual meeting at the court-house, North Yakima, Feb. 7 and 8, 1912. Everybody is invited, whether member or bee-keeper.

JOHN F. MILLER, Sec., Toppensish, Wash.
JESSE W. THORNTON, Pres.

The New York State Bee-keepers' Association will hold its next annual meeting on the 30th and 31st of January, at Syracuse, in the county court-house. Every bee-keeper is invited to be present, for it is going to be a bee-keepers' meeting such as they never attended before.

DR. C. G. SCHAMU, Sec., Liverpool, N. Y.

The South Dakota Bee-keepers' Association will meet at Auditorium, Sioux Falls, S. D., January 18 and 19, 1912. The following is the program.

OPENING SESSION, JANUARY 18, 1:30 P.M.

Song by Rhoda Cary and May Kirk.

Bees on the Farm, by Geo. Wester.

What Size of Section is best for Shipping? W. P. Southworth.

What Size of Hive and Section shall we Adopt? L. A. SYVERUD.

Question-box.

7:30 P.M.

President's Annual Address, R. A. Morgan.

Election of Officers.

Wintering Bees, Rhoda Cary.

Question-box.

JANUARY 19, 9 A.M.

Sweet Clover as a Honey-plant, R. A. Morgan.

Foul-brood Law—is it O. K.? Henry Ginsbach.

Question-box.

L. A. SYVERUD, Secretary.

The thirty-third annual convention of the Wisconsin State Bee-keepers' Association will meet in the Supervisors' room at the court-house, Madison, Wisconsin, February 20 and 21, beginning at 10:00 A.M. Tuesday.

The last convention provided for premiums of \$5, \$3, \$2, and \$1 respectively for the four best papers, each paper to occupy not less than five minutes nor more than ten minutes. This is open to all

members, and all papers must be handed to the secretary not later than the first day of the convention, otherwise they will not be admitted for contest. The main feature of our conventions has always been the question-box, and we want you to come prepared with questions; or if you can not come, send your questions to the secretary, and you will hear of them through the printed proceedings. George W. York, President, and N. E. France, Manager and Treasurer of the National Association, will attend this meeting, and both have promised just what we may expect from them.

Headquarters of the bee-keepers is usually the Simons Hotel—a clean, moderate-priced house. To secure a room it will be necessary to write a week ahead of time, and enclose \$1.00 in your letter.

We invite every member to renew his membership. We invite every bee-keeper to become a member.

Annual dues for the Wisconsin State and National, \$1.00 for both, or you may become a member of the Wisconsin State alone by sending 50 cents to the secretary. Be sure to let us hear from you, together with your questions and paper, and, if possible, attend the convention.

Augusta, Wis., January 1, 1912.

Catalogs Received

The Brown Fence and Wire Co., Cleveland, Ohio, send us a 64-page catalog of woven-wire farm, garden, and poultry fences and gates. "Brown pays the freight." Send for his catalog.

W. N. Scarff, New Carlisle, Ohio, issues a 40-page catalog of fruit and farm seeds. Special \$5.00 offers on stock for planting a model orchard; also same offer for fruit-garden. Read his offer on World's Prize field corn.

A. T. Cook, Hyde Park, N. Y., sends out a large annual catalog of "money-saving seeds" for 1912. A specialty is the Six Weeks potato.

Madary Supply House, 733 Aliso St., Los Angeles, Cal. The first bee-supply catalog to reach our office this year is from California—36 pages, full of descriptions, illustrations, and prices of goods for bee-keepers. Send for it.

W. F. Allen, Salisbury, Md., sends out a 50-page catalog of strawberry-plants and other small fruit. Early shipments when desired. See cover page.

Peter Henderson & Co., 35 Cortlandt St., New York, publish a manual of 200 large pages of every thing for the garden. No gardener should be without this.

Henry A. Dreer, 714 Chestnut St., Philadelphia, Pa.—Dreer's Garden Book, 288 pages, 74th edition—a valuable addition to every gardener's library.

W. Atlee Burpee, Philadelphia, Pa., sends out a catalog of 178 pages, entitled "The Plain Truth About the Best Seeds." Lovers of sweet peas will be especially interested in this catalog.

Chas. Navlet Co., San José, Cal., send out a catalog of 116 pages entitled "1912 Planters' Guide;" a specialty of White American Beauty roses, including nursery stock, seeds, and plants. We imagine our California and other Western readers would be profited by sending for this catalog.

J. Steckler Seed Co., Ltd., New Orleans, La., issue a well-illustrated catalog of 212 pages, including their Almanac and Garden Manual, especially adapted to the Southern States. We think our Southern readers will be particularly interested in this. Not only do they list a well-assorted line of seeds, but they have a good many specialties for the farm and garden.

Our subscribers will confer a favor on us by mentioning *Gleanings in Bee Culture* when sending for catalogs.

Books and Magazines.

STILL TIME TO GET THE COMPANION FOR \$1.75.

The publishers of *The Youth's Companion* announce that they will accept yearly subscriptions at \$1.75 up to the end of March. The new rate of \$2.00 will go into effect promptly on April 1. The large number whose subscriptions run over into the early weeks of the year, as well as those who were unable to send in new subscriptions before January 1, will have this opportunity to get *The Companion* for another fifty-two weeks at the old

price. If you had no other periodical reading for your family, *The Youth's Companion* would be sufficient—sufficient for keen enjoyment by every one, young and old; sufficient to keep you posted on the important news and events of the day; sufficient to give you a mind richly stored with useful knowledge. The new departments have become indispensable features of the paper. The page devoted to the interests of boys in school and college always has an article of expert advice on athletics by some one who speaks with authority, whether it is football, baseball, skating, swimming, or other vigorous pastime. The page for girls suggests useful occupations at home and profitable occupations in the community, without forgetting that girls like to be ornamental as well as useful. And there is the family page, which in the course of a year fills the place of a domestic encyclopedia.

Subscribe now—to-day—while *The Companion* may yet be had for \$1.75.

THE YOUTH'S COMPANION,
144 Berkeley St., Boston, Mass.

Special Notices

By A. I. Root

THE "APPCO PAPER HEN," ETC.

I am glad to see corrugated paper for fireless brooders taking the place of heavy lumber, not only because of the saving in transportation, but the ease with which chicks, brooder, dooryard, and all can be carried indoors when a cold spell comes suddenly. You may recall that I used a market-basket for a brooder because it was so easy to carry the chicks indoors or into the incubator cellar nights, not only to have them out of the cold but to have them safe from rats and other prowlers. Well, this paper hen is much better protection from the cold, and a neat, tidy, and light dooryard goes along with it. See particulars on page 13 of our Jan. 1st issue. I have already examined the "paper hen," and expect to use it for my ducklings as soon as I can get down here in my Florida home.

WATCH THE VOTE ON THIS.

Senator Bourne, of Oregon, has introduced a little bill that will bear watching. Some time next year this bill will be considered more seriously than it is now. But it will be best to remember it all along. It provides:

That . . . no higher postage rate shall be charged for the transmission of mail entirely within the United States . . . than . . . for the transmission of mail partly within and partly without the United States. . . . The Postmaster-General is hereby authorized and required to establish and enforce rules and regulations which will give the people of the United States rights and privileges in the use of the United States mails as liberal as the United States accords to the people of the most favored nation.

It doesn't seem unreasonable, does it, that you should have as good service on your own nation's postal cars and in her own postoffices as that accorded to Japanese, British, Chinese, and Russians? And yet that equality is just what the Bourne bill is required to establish. The farms of the United States would have parcels-post service if farmers were as well treated on our own postal routes as we treat foreigners. It is a shameful thing that the postal service from your door to any foreign country should be better than it is to your nearest city or town. And yet such is the case. We carry parcels for the foreigner, and refuse to do it for our own citizens. Your Congressman and your Senators will have to vote on the Bourne bill, perhaps. Watch, and see how they vote. And may be it would be well to drop each of them a postcard, telling them that you are watching to see what is done.

—*Farm and Fireside*, Dec. 9.

Yea, truly! Why should we not have all we accord foreigners?—A. I. R.

Kind Words From Our Customers.

We have had bees only about three years, but find great pleasure in caring for them. We also think our fruit is much benefited. Incidentally we have enjoyed some fine honey and given many

treats to our friends. GLEANINGS comes next to Holy Writ with my husband. Your poultry notes are a great help to us.

Waterford, Ct.

MRS. FRANK JACQUES.

THE BEES HELP TO PAY THE TUITION, ETC.

I turned to p. 370 (the baby on the squash) again and again, for I love children. How I should like to help you strike out the disease-breeding saloons! Our towns are full of them. I have two boys, the elder of whom is 21 years old. He just finished up four years in college. The bees nearly paid for it all. The other boy is 17, and is ready for the same place. No liquor is allowed to be sold within five miles of this college. The number of students for 1910 and 1911 was 1808.

Cornwall, Pa., June 28.

E. B. KAUFFMAN.

"REJOICE AND BE GLAD."

Bless your heart, Mr. Root, do you know that you are doing a lot of good in helping us along? Your Home talks have some powerful suggestions for every one, and your temperance talk is good too. I am called "the Freak" here in this place because I do not drink liquor nor use tobacco.

It makes my heart glad to see the great temperance movement go on. I claim that any man who patronizes a saloon is a traitor to his family, and a rank insult to them also.

Pine Grove, Cal., July 10.

GEO. PRESTON.

[Thanks for your kind words, my good friend. The next time they call you a "freak" because of your principles, take comfort, remembering what the Master said: "Blessed are ye when men shall revile you, and persecute you, and say all manner of evil against you falsely, for my sake. Rejoice ye in that day, and leap for joy; for, behold, your reward is great in heaven."]

TERRY AND HIS TEACHINGS—A LETTER WRITTEN TO T. B. TERRY.

Dear Mr. Terry:—One year ago this month I noticed the advertisement of your book in GLEANINGS, and renewed my subscription and procured your work. I was in poor health at the time, and not able to follow the usual labor of office work at the age of 59 years. Magnetic and massage treatment were used, but I had given up the use of drugs for a long time previous to this; otherwise I feel quite sure I should not be writing this letter to you at the present time.

I had previously noticed the mention of more water-drinking as conducive to better health, etc., and even made a memorandum in my note-book to put it more in practice; but not until I read your book, stating the fact so forcibly and convincingly to any candid mind did I commence the water-drinking in earnest, and now have done so for a year. I procured as pure water as obtainable here in the city—spring water at 5 cts. per gallon, commencing with one glass the first thing on getting up in the morning; another at 11, and 4 and 10 P.M. Six months later I increased the quantity of water to two glasses at 11, and 4 P.M. as a rule, but I exceeded at times the amount stated. I also took up the meat problem at the same time, but made the change slowly, as you suggested, by eating a less quantity, and more of the grain; entire-wheat bread, baked potatoes, English walnuts, olive oil, lime juice, and much fruit in season. During the last six months I probably have not eaten more than 3 lbs. of flesh of all kinds; and pork, with the exception of bacon I have avoided for years.

My system seems to be abundantly fed. I enjoy a splendid appetite with renewed strength and health, and the enjoyment of life, with only now and then a slight tendency of the old state of existence showing up.

To say that I am more than grateful for the inspiration and help I have received but briefly expresses it. This kind of Christianity (if only the heathen in our own communities could be converted) would do more for the good of all than we can easily imagine.

With very much of our good friend A. I. Root's delicate constitution to look out for, and, like him in the strenuous world of the age from a young man (with rather more of the hustle attached to the business than the ordinary person receives), at times I have to slow down (in order to get steam in the boiler) to get under way again for another period of activity.

Waterbury, Ct., March 10. JOHN K. GOODRICH.

ESTABLISHED 1891.

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.

San Antonio, Texas.



Factory and Warehouse.

To Our Friends and Patrons.

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and bee-keepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$80,000.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We pay for beeswax, average clean, 28c cash or 30c in trade. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{1}{2}$ -inch frames, same as described in our catalogue, page 5, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives. As usual we start out with 15,000 cases of honey-cans, and more to come. While there is a good season in the ground, and horsemint is up over nearly the entire State, we will have an ample supply of honey-cans ready for the use of bee-keepers, and prepared for shipment at any moment.

We also desire to invite the attention of our patrons to the fact that, on account of the enormous increase in the demand for our goods last year, it was impossible for us to fill orders as promptly as we should have done, and for that reason we would urge our customers to place their orders as early as possible, in order to avoid delays. It is our special aim to please, and therefore we would ask that the management be immediately notified of any misunderstanding that may arise, assuring our customers that any mistake or misunderstanding that may occur will be cheerfully and amicably adjusted by us.

Judging from the unusual number of orders received as early as November and December of last year, together with the exceptionally favorable prospects ahead, we anticipate a much greater volume of business than ever before; however that may be, it is always a source of gratification to us to please and satisfy our customers, and to that end we shall do our best.

REMEMBER! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **YOU SAVE MORE** by ordering here, for freight to San Antonio has been paid by us.

January early-order discount **3 per cent**

February early-order discount **2 per cent**

Wood's Seeds

For 1912.

Our New Descriptive Catalog is fully up-to-date, and tells all about the best

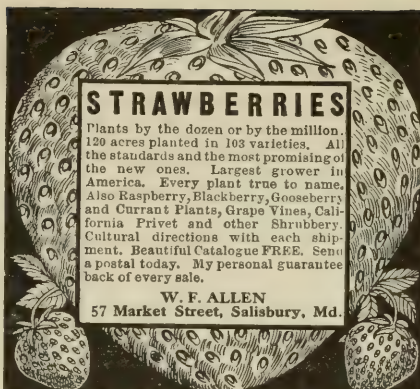
Garden and Farm Seeds.

Every farmer and gardener should have a copy of this catalog, which has long been recognized as a standard authority, for the full and complete information which it gives.

We are headquarters for
Grass and Clover Seeds, Seed
Potatoes, Seed Oats, Cow Peas,
Soja Beans and all Farm Seeds.

Wood's Descriptive Catalog mailed free on request. Write for it.

T. W. WOOD & SONS,
Seedsmen, - Richmond, Va.



STRAWBERRIES

Plants by the dozen or by the million. 120 acres planted in 103 varieties. All the standards and the most promising of the new ones. Largest grower in America. Every plant true to name. Also Raspberry, Blackberry, Gooseberry and Currant Plants, Grape Vines, California Privet and other Shrubbery. Cultural directions with each shipment. Beautiful Catalogue FREE. Send a postal today. My personal guarantee back of every sale.

W. F. ALLEN
57 Market Street, Salisbury, Md.



HUNDREDS OF CARLOADS OF Fruit and Ornamental Trees,

Evergreens, Shrubs, Hardy Roses, etc. 1,200 acres, 50 in Hardy Roses, none better grown. 47 greenhouses of Palms, Ferns, Ficus, Everblooming Roses, Geraniums, and other things too numerous to mention. Mail size postpaid, safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS**, the queen of bedding plants. Acres of Pæonias and other Perennials. 50 choice collections cheap in Seeds, Plants, Roses, etc. For Fruit and Ornamental Trees ask for Catalog No. 1, 112 pages; for Seeds, Everblooming Roses, Cannas, Geraniums, Greenhouse and Bedding Plants in general, Catalog No. 2, 168 pages. Both **FREE**. Direct deal will insure you the best at least cost. Try it. 58 years. (25)

THE STOPPS & HARRISON CO.
BOX 484 PAINESVILLE, O.

Peach Trees.

free to every body.

800,000 Peaches, 5 to 7 feet, 10c; 4 to 5 ft., 8c; 3 to 4 feet, 6c; 2 to 3 ft., 4c. 200,000 Apples, 50,000 Pears, 50,000 Plums, 100,000 Cherry, 300,000 Carolina Poplar, and millions of Grape and Small Fruits. Secure varieties now, pay in Spring. Buy from the man who has the goods and save disappointment. Catalog

Sheerin's Wholesale Nurseries, Danville, N. Y.



Farm and Garden Handbook FREE!

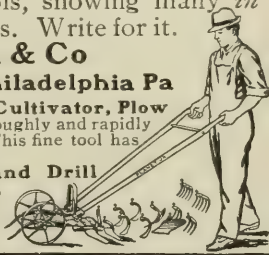
The PLANET JR 1912 catalogue is an *instructive* and valuable handbook of short cuts to best results for farmers and gardeners *everywhere*—not simply a list of implements. It illustrates 55 latest-improved Planet Jr tools, showing many in *actual use*. 64 big, helpful pages. Write for it.

S L Allen & Co
Box 11065 Philadelphia Pa

No. 11 PLANET JR Double Wheel Hoe, Cultivator, Plow and Rake works both sides of plants thoroughly and rapidly at one passage, until crops are 20 inches high. This fine tool has indestructible steel frame and steel leaf lifters.

No. 4 PLANET JR Combined Hill and Drill Seeder, Wheel Hoe, Cultivator, and Plow sows seed accurately and works quickly, easily, thoroughly. Wonderful all-round garden tool and money-saver.

Send postal today!



No Moonshine—Just Plain, Unvarnished, *Cashable* Facts About Poultry Profits

If there ever was a straight-from-the-shoulder statement of facts, you'll find it in JOEL M. FOSTER'S book "THE MILLION EGG FARM."

Mr. Foster owns the famous Rancocas Poultry Farm, and in his book he tells his methods for producing upward of *eleven hundred thousand eggs a year*, and piling up a clean annual profit of close to \$20,000.00.

We *know* that the statements in this book are cold facts—because we proved them before publishing

"The Million Egg Farm"

We have sold many thousand copies of this book, and we *know*, from the actual experiences of those who have read and followed it, that these facts can be profitably applied by *you*—whether you have a dozen hens on a back lot, or number your fowls by the thousands.

Up in Scranton, Pa., a clerk, Robert Liddle by name, read this book, followed its directions, and at last reports was cleaning up \$17.00 a day profit on eggs.

In the light of such experiences, we *know* that farmers need this book. That's why we published it and are trying to put it into the hands of every poultry owner.

To *serve* the farmer is the whole purpose of FARM JOURNAL. To serve him with sound advice regarding every branch of farm work.

To enable him to profit by the labor saving and money-making discoveries of other farmers. To serve the farmer's wife with helpful housekeeping suggestions. To serve the farmer and his entire family with clean, wholesome entertainment.

Upward of four million readers welcome its monthly visits.

You need this paper and *you need* the MILLION EGG FARM book, and you can have

Farm Journal every month for four years and "The Million Egg Farm" at once, postpaid, for only \$1.00.

Do yourself and family the favor of sending in the dollar to-day.

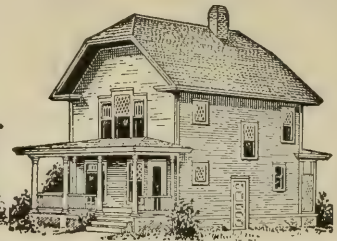
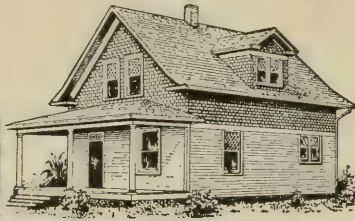
FARM JOURNAL,

117 N. Clifton St., Philadelphia

Cleanings in Bee Culture



VOL. XL. FEBRUARY 1, 1912, NO. 3.



\$644

Buys Lumber and Millwork for this Elegant 7-Room House

\$620

Buys Lumber and Millwork for this Cozy 7-Room House

\$698

Buys Lumber and Millwork for this Fine 8-Room House

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We furnish everything to build these splendid houses, or any you may choose from our Book of Plans, at prices that save you big money. Within 48 hours after your order is received, all the millwork, lumber, etc., required will be shipped out by fast freight. Our stock of building material is immense and the finest in America. We undersell everybody. We guarantee quick shipment.

build a new house or repair or remodel an old one and save about 50% on every item.

Mill Prices Save You Big Money.

Our system of selling direct from our plant to the actual consumer saves you the jobber's, wholesaler's and retail dealer's profits. We save our customers a million dollars a year.

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2744 Case St., Davenport, Iowa

"falcon" Foundation.

Sales Doubled in 1912.

This remarkable increase in sale of our special-process foundation can be accounted for only by the fact that our produce gives absolute satisfaction.

PROCESS OF MANUFACTURE.—The very best grades of beeswax, clarified without that acid taste or odor which is so objectionable in some makes, sheeted by our heavy-pressure process, reduced and polished by smooth rolls, allowed ample time to cure, is finally passed through embossed power mills, resulting in that clear, absolutely pure product, **FAMOUS THE WORLD OVER, "falcon" FOUNDATION.** No detail, from the buying of the beeswax to the packing of the product, is slighted. The care and skill in cleansing, the absolute purity from all foreign matter, the enormous pressure in sheeting into continuous belt-like sheets, the transparency and perfectness of the finished product, with the appearance and smell of the hive itself (for it is indeed the product of the bees purified, embossed, and returned for their use), has made a product, **"falcon" FOUNDATION,** which has been chosen by the bees themselves as the acme of foundation. The **"FALCON"** way is our **WAY** developed in thirty years of foundation manufacture.

Quality.

"FALCON" FOUNDATION made by our special methods has won a reputation on account of its perfect cell formation, non-stretching qualities, and the readiness with which bees begin work upon it. Our section foundation is perfectly clear, and with it is produced those pearly-white sections of honey so much admired. Our brood foundation is particularly adapted for full sheets in brood or extracting frames. Its strength eliminates all stretched cells in which drone brood is reared, or elongated cells in which no eggs at all are laid. Use **"FALCON"** FOUNDATION and satisfy your bees.

Samples.

We **GUARANTEE** every sheet equal to samples in every particular. Drop us a card for samples and they will be sent postpaid.

Distributors in The United States.

To enable our ever rapidly increasing number of customers in all States to get **"FALCON"** supplies quickly with only carload freight rates to pay, we have established distributors in all parts of this country.

Georgia—J. J. Wilder, Cordele.

California—John C. Frohlinger, 257-59 Market St., San Francisco.

Missouri—C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City.

Ohio—Fred W. Muth Co., 51 Walnut St., Cincinnati.

Illinois—W. T. Falconer Mfg. Co., Branch 117 No. Jefferson St., Chicago.

Pennsylvania—A. M. Applegate, Reynoldsville. J. R. Rambo, Collingdale, suburb of Philadelphia.

New York—Deroy Taylor, Lyons. Hudson Shaver & Sons, Perch River.

W. T. Falconer Mfg. Co., Falconer.

Texas—J. W. Reid, Uvalde.

Massachusetts—Ross Bros. Co., Worcester.

Rhode Island—Cull & Williams Co., 180 Washington St., Providence.

Hundreds of other dealers in the United States handle **"FALCON"** goods in smaller quantities; still they have a full assortment, and can give your wants prompt attention. If you do not know the name of the dealer in your section, send us a list of your wants for quotation from our nearest location—delivered, if you wish—less early-order discount.

Send for a **RED CATALOG.**

February early-order discount at all **"FALCON"** dealers, 2 per cent.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory—Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, Jan. 18. **BLAKE-LEE CO.**

KANSAS CITY.—The supply of both comb and extracted honey is not large, and the demand is not heavy. We quote: No. 1 white comb, 24-section cases, at \$3.25; No. 2 ditto, \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 8½ to 9; amber, 8 to 8½; dark, 5½. Beeswax, 25 to 28. C. C. CLEMONS PRODUCE CO.

Kansas City, Jan. 23.

INDIANAPOLIS.—Demand is good for best grades of comb and extracted honey. White comb sells for 18 cts. in ten-case lots, finding ready sale. Amber grades are in slow demand at much lower prices. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, Jan. 18.

WALTER S. POWDER.

SCHENECTADY.—There are no new features in the honey market here. The demand is fair, but only in a small way. Dealers do not want to be out of honey, neither do they want much on hand, as the quality is so poor. We note some improvement in demand for dark extracted, and think it will all be cleaned up in a month or so. No change in prices.

Schenectady, Jan. 20.

CHAS. MACCULLOCH.

CINCINNATI.—The market on comb has fallen off somewhat, the only demand being for fancy white, selling in a retail way at \$4.00; to jobbers, at \$3.60 to \$3.75, according to quantity. Extra white extracted, in 60-lb. cans, brings 10 cts.; light-amber ditto, 8½; amber in barrels, 7 to 7½. Beeswax is in fair demand at \$3.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & Co.

Cincinnati, Ohio, Jan. 20.

DENVER.—The demand for honey is now improving, especially comb, and better prices are ruling than before the holidays. Our stock of comb honey is light; and any shipments made to us can be turned soon, if good white stock, free from granulation. We quote prices in a jobbing way, strictly No. 1 white, per case, \$3.60; No. 1 light amber, \$3.35; No. 2, \$3.15. We have a large stock of extracted

honey of fine quality on which we are making the following jobbing prices: White extracted, 9; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, Jan. 20. **F. RAUCHFUSS, Manager.**

ZANESVILLE.—It is too soon after the holidays for much stir in the honey market; and this fact, coupled with excessively cold weather, has rendered the demand almost nil. Prices remain practically as in previous quotations—about 20 cts. wholesale for best grades of white comb, and 10½ to 11 for extracted in five-gallon cans. We quote white only, there being practically no demand for the darker grades. Producers are offered for beeswax 29 cts. in cash or 31 in exchange for bee-supplies.

Zanesville, O., Jan. 17.

E. W. PEIRCE.

ST. LOUIS.—Since ours of Jan. 10 there has been no improvement in our honey market. If any thing, the prices are lower, especially if the goods are forced on the market. We quote fancy white comb honey at 17 cts.; No. 1, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted white clover brings 8½ to 9; alfalfa, 8 to 8½; light-amber Southern, 8 to 8½ in cans, and 7 to 7½ in barrels and half-barrels; California light amber, in cans, 8 to 8½. Beeswax, prime, brings 30 cts.; impure and inferior, less.

R. HARTMANN PRODUCE CO.

Jan. 24.

St. Louis, Mo.

CINCINNATI.—The condition of the honey market reminds one of a ship that is beached and must await the high tide to move it. It is useless to offer any inducements to make sales; and to cut prices would not only be a loss, owing to the small profit, but would ruin the conditions. Nevertheless, we do not overlook opportunities to make sales. For the fancy grades of table honey we are getting from 10 to 11 cts. per lb. in 60-lb. cans; and for amber honey of the better grades from 8 to 9; for the low grades, 6 to 7, according to the quality and quantity purchased. These are our selling prices. Comb honey is moving somewhat slower than for some time back, and we are now getting from \$3.75 to \$4.00 a case. For choice bright yellow beeswax we are paying 30 cts. per lb., delivered here.

Cincinnati, Jan. 19.

THE FRED W. MUTH CO.

NEW YORK.—Comb honey is well cleaned up, and prices are well sustained for what few odd lots are coming in. As to extracted, the market is weakening and prices are gradually declining. Strictly fancy clover, California white and water-white sage hold their own fairly well on account of there not being much stock around. There are large supplies of all other grades, such as alfalfa, amber, light amber, white, etc., and prices show a decided downward tendency; in fact, in large quantities quotation prices will have to be shaded in order to effect sales. We quote alfalfa at 6½ to 7½, according to quality; California white sage, 8½ to 9; water-white, 9½ to 10; white clover, 9 to 10; buckwheat, 6½ to 7. Beeswax is steady at 30 to 31.

New York, Jan. 18.

HILDRETH & SEGELKEN.

HEARD OVER THE FENCE ONE DAY.

Brown.—“I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results.”

Jones.—“Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.,** gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one.”

What you get of Weber at
CININNATI

Some things in addition to service, prompt and satisfactory shipments, and a real desire to please you, that come from the central point of distribution.

Root's Supplies—new and clean, and of the finest quality. New hives, new foundation, new sections—everything fresh from the factory in carload shipments.

Early-order cash discount. Two per cent for February; one per cent for March—a worthwhile saving to which you are entitled. Don't fail to get your order in at once.

Saving on freight or express. By buying here, part of the cost of transportation is borne by us. You pay only from Cincinnati. This is quite an item on large orders, and our patrons are coming to appreciate it more and more.

Be Sure to Ask for our new catalog, if you do not receive it soon

Just bear these facts in mind, and begin right by ordering your season's supplies from

C. H. W. Weber & Co.
2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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H. H. ROOT

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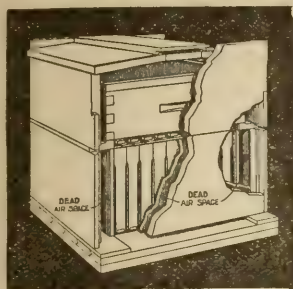
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The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply made of $\frac{1}{8}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

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SELF CLEANING
BEE SMOKER



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

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Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by

Hives and Horses

A Little Talk on Economy.

No one with any knowledge of horses would be likely to answer an advertisement offering a horse for sale at the low price of twenty-five dollars. There are horses and horses, but good horses are not cheap.

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ROOT bee supplies are admittedly the best, and no other supplies "just as good" can be bought cheaper. Beware of shoddy imitation goods offered at cut prices.

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Bee-keepers' Supplies.

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Beeswax taken in exchange for supplies or cash.

We are 75 miles west of St. Louis. Shipping facilities good.

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High Hill, Montg. Co., Mo.

CHAS. ISRAEL & BROS.

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Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments solicited. Established 1875.

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Apiarists, Glen Cove, L. I.

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DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

Issued Semi-monthly

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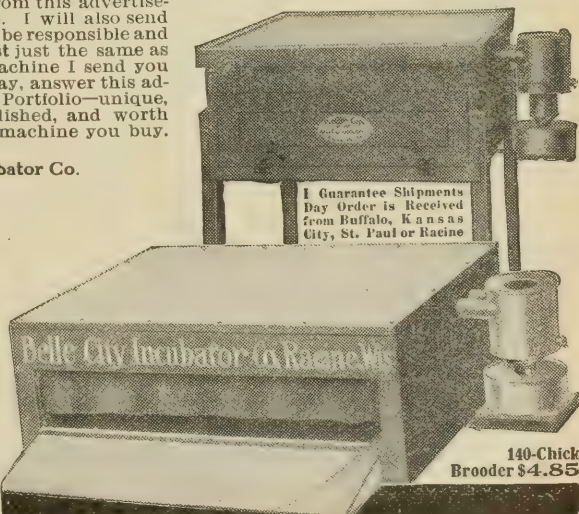
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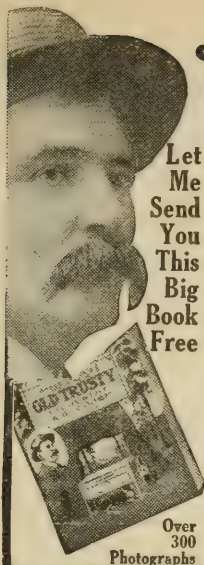
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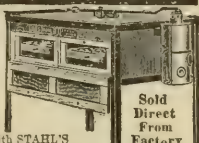


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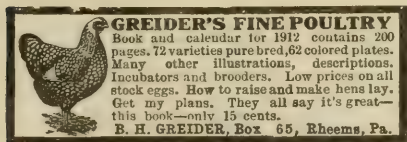
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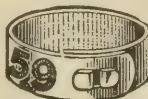
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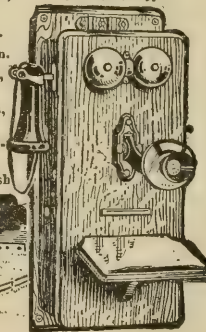
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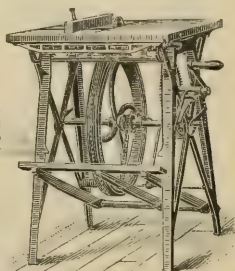
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ALL Phelps asks of you is to write a postal for your copy of his own big 1912 book. It's waiting for you, fresh from the printer. He pays the postage. Phelps shows you real buggy values. He knows. And he knows how to make you a judge of strong points and weak spots on any job. The book is the largest and best showroom of exclusive up-to-date styles in America. Shows more than 25 dealers could—but no job lots, or quantity lots, made "cheap" to sell "cheap."

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Phelps makes you a better buggy than sold by others—highest grade made—and guarantees to save you all middlemen's profits, an average of \$25.00 and up. You can take your choice and test on the road,

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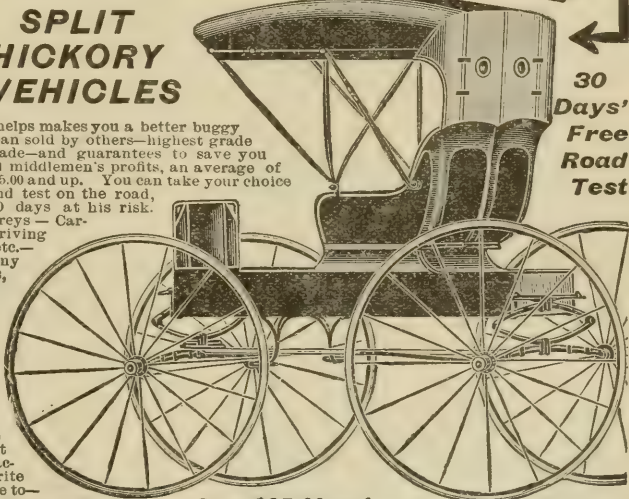
Phelps' Book tells you how and why split—(not sawed) triple A grade straight grained hickory in his buggy wheels and running gears has made his buggy sales the largest in America direct from factory at factory prices. Write a postal for the Book Free to—

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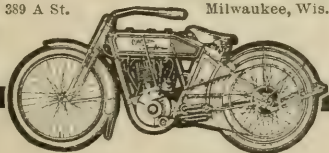


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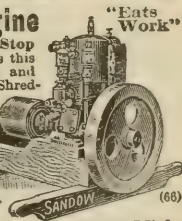
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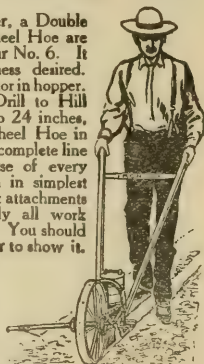
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We ship on approval without a cent deposit, freight prepaid. **DON'T PAY A CENT** if you are not satisfied after using the bicycle 10 days.

DO NOT BUY of tires from anyone at any price until you receive our latest art catalogs illustrating every kind of bicycle, and have learned our unheard of prices and marvelous new offers.

ONE CENT is all it will cost you to write a postal and everything will be sent you free postpaid by return mail. You will get much valuable information. Do not wait, write it now.

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**60 DAY CABBAGE
SUGAR PARSNIP
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15 DAY RADISH
12 DAY LETTUCE
GIANT CLIMBING
TOMATO**

Earliest we ever saw. Heads quick. Try it and you will say so. Best variety for home gardens. It grows quick to a good size. Here is a cucumber to be proud of. Grows just right for pickling. This is a wonder for quick growth. Try it and you will say so. Try this lettuce and you will say it is the quickest grower on record. Most wonderful tomato we ever knew. Climbs trellises 12 to 20 feet. Fruit enormous in size.

Remember these seeds are sent absolutely **FREE** to every reader who has a garden and will test them. Several dollars worth of vegetables can be grown from this lot of seeds. Write your name and address plain on a Postal Card and it will bring them.

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Evergreens, Shrubs, Hardy Roses, Etc. 1,200 acres. 50 in Hardy Roses, none better grown. 47 greenhouses of Palms, Ferns, Ficus, Everblooming Roses, Geraniums, and other things too numerous to mention. Mail size postpaid, safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS**, the queen of bedding plants. Acres of Peonias and other Perennials. 60 choice collections cheap in Seeds, Plants, Roses, Etc.

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Is a complete treatise on strawberry culture written by America's greatest strawberry expert. Indorsed by agricultural colleges and strawberry growers of highest authority. Government reports show that strawberries yield more dollars per acre and give quicker returns than any other crop.

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Instructions for planting, cultivating and pruning; also descriptions of best varieties for vineyard or home garden. Profusely illustrated. Issued by the largest growers of grape vines and small fruits in the country. Millions of vines for sale.

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BEST IN THE WORLD

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Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

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850,000 GRAPEVINES

69 Varieties. Also Small Fruits, Trees, etc. Best Rooted Stock, Genuine, cheap, 2 sample vines mailed for 10c. Desig. price—list free. **LEWIS ROESCH & SON, Box A, Fredonia, N. Y.**

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We offer to the planter 200,000 Apple trees, 800,000 Peach, 50,000 Pear, 50,000 Plum, 100,000 Cherry, 300,000 Carolina Poplar, and millions of Grape and small fruits. Secure varieties snow. Pay in the spring. Buy from the man who has the goods and save disappointment at planting time. Catalog free to every-

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Burpee's Annual for 1912

"The Leading American Seed Catalog"

Is now ready for mailing. The first edition of more than four hundred thousand copies will soon be distributed. As usual it is sent unsolicited only to "Customers of Record." We shall be pleased, however, to mail a copy immediately upon application (a postal card will do) to every one who appreciates QUALITY IN SEEDS.

This SILENT SALESMAN (and we employ no "talking" salesmen to solicit orders) tells the plain truth about The Best Seeds That Can Be Grown. Besides colored plates of Burpee-Specialties, this bright book of 178 pages shows hundreds of the choicest vegetables and most beautiful flowers, illustrated from photographs. It is almost indispensable to all who garden either for pleasure or profit.

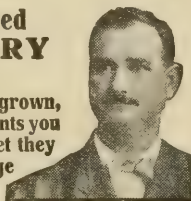
The "HOUSE OF BURPEE" is known the world over not only as EXPERTS IN SWEET PEAS but also as SEED SPECIALISTS. No other American firm has ever introduced so many novelties of sterling value,—and no other growers supply seeds annually direct to so many planters. It might be to your interest to read THE BURPEE ANNUAL. It will cost you only one cent for a post-card to send us your address, and you are under no obligation to buy. We never annoy applicants with "follow up" letters!

Shall we mail you a copy? If so, kindly write to-day.

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Thomas' Pure-Bred STRAWBERRY PLANTS

Are the best bred, best grown, best dug, best packed plants you can buy at any price, yet they cost no more than "average quality" plants.



Guaranteed free from all plant disease. Every plant guaranteed true to label. Strong, sturdy, well rooted, wonderful yielders. Grown under my personal supervision in a natural strawberry soil and climate. My plants have produced record crops in 40 states of the 46 states in the Union. 21 years of intensive study and experience back of every sale. I will help you select varieties that will give best results in your soil and climate.

**I'm the Strawberry Plant Man
Grow Nothing Else—Have 200 Acres**

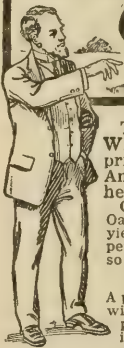
I care not how many berries you are getting per acre, if you use my plants you can get more.

My Great Strawberry Book tells how to buy, plant, cultivate, market. Contains 65 superb engravings. Send for it today. It's free.

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260 Main St., Anna, Ill.



Oats



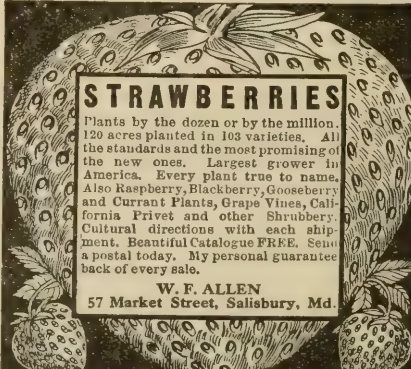
Twenty odd years ago, Salzer's White Bonanza Oats won the world's prize of \$500.00 offered by the American Agriculturist for the heaviest yielding oats.

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Plants by the dozen or by the million. 120 acres planted in 103 varieties. All the standards and the most promising of the new ones. Largest grower in America. Every plant true to name. Also Raspberry, Blackberry, Gooseberry and Currant Plants, Grape Vines, California Privet and other Shrubbery. Cultural directions with each shipment. Beautiful Catalogue FREE. Send a postal today. My personal guarantee back of every sale.

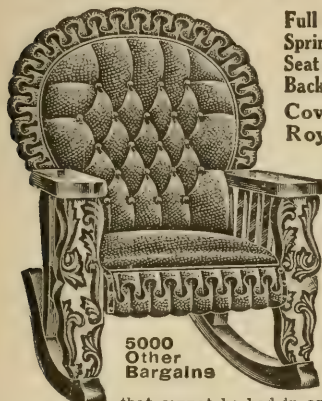
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Gooseberries, Strawberries—best growers, most prolific varieties. Get our catalogue. Has accurate descriptions and offers many special bargains. 1100 acres. FREE—With every \$1.00 purchase, we give you 10 kernels grown from the \$350 Prize corn (10 ears) of the National Corn Show. Your only chance to get this prize corn. 25 years in business. Sell direct. No agents. Everything true to name and dependable stock. W. N. SCARFF, New Carlisle, O.

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Full Spring
Seat and Back—
Covered in Best
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Look at the picture; doesn't this Rocker look inviting with its high, broad, shapely back and deep roomy spring seat? It's made to last forever, and its wide arms, supported by six neatly turned smooth spindles, and massive front carved posts, give it the exclusiveness and style

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Same quality material as in big expensive sprayers. Its quality makes it cheap.

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Write us today for special booklets on this and other Iron Age farm, garden and orchard tools

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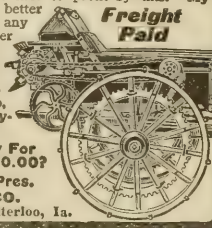
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Send for my wonderful money-saving special spreader offer to ten or more men in every Township. I want to place at least ten Galloway Spreaders in every Township in the next six months, and will cut my profit to the quick to do it! Be one of the first to profit by this. My Spreader positively will do better work and last longer than any spreader made—no matter what the price—so why pay \$50 more? My special proposition will interest you. Write a postal addressed to Galloway of Waterloo, Iowa, will bring you everything postpaid.

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The only Strop-
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FEED IS HIGH AND GOING HIGHER

The successful poultryman knows that a little mixed grain, corn meal, beef and roots cooked together and served warm on a cold day will make hens thrive and lay every day.



CLARK'S ROOT CUTTER

is the simplest, strongest, cheapest and most perfect Root Cutter made. Heavy Oak frame, cutting apparatus has 25 steel knives, gouged shape. Roots, Vegetables, etc. neatly cut. A boy can easily cut 35 to 40 bushels per hour. Send to-day for FREE Booklet and special prices.

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NEW STRAWBERRIES! 1912 Catalog FREE to all. Reliable, interesting, and instructive. ALL THE NEW EVERBEARERS, and other important varieties. Address C. N. FLANSBURG & SON, Jac's son, Mich.



Fall Bearing Strawberries

These Berries are truly wonderful. They bear fruit every fall as well as spring, three crops in two years. They have yielded as high as 10,000 qts. to acre in Aug., Sept. and Oct. of first year, with us. We cannot get enough fruit to supply the demand at 25c per qt. wholesale. I know of nothing in the fruit line quite so profitable. We are also headquarters for Plum Farmer, Idaho and Royal Purple Raspberries, Early Ozark Strawberry, Watt Blackberry, Hastings Potato. Catalogue of all kinds of Berry Plants free. Address L. J. FARMER, Box 208, Pulaski, N. Y.

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Why not learn the improved methods of intensive, scientific agriculture at home! Not room here to tell of our fine proposition. Faculty of experts, our many courses—General Farming, Bee-keeping, Poultry, Fruit, Dairying, Live Stock, Soils, etc., and how we teach you to farm your farm. Just send postal card to-day telling what line of farming interests you, and receive the interesting particulars of our unique and practical school and our—

VALUABLE BOOKLET ABSOLUTELY FREE

"How to Make the Farm Pay More"

More profit for the farmer. A safe way out for the city man. Students the world over. Just the opportunity you want to get ahead. Excellent correspondence course in bee-keeping edited by E. R. Root, the foremost authority on scientific bee-keeping, who gives all students personal attention. Big money if you know how. Write to-day.

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Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Alfalfa sweet-clover honey, 9000 lbs. at 7½ cts. Sample 2 cts. T. H. WAALLE, Nampa, Ida.

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Light-amber buckwheat extracted honey in 60-lb. cans. Four cans or over, 8 cts. W. D. SOPER, Jackson, Mich.

FOR SALE.—Clover honey in 160-lb. kegs, 9 cts; buckwheat in kegs or 60-lb. cans, 7½. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Clover honey ripened on the hive, in 60-lb. cans; gathered in June, extracted in August. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—White and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans. J. P. MOORE, Morgan, Ky.

FOR SALE.—Until further notice, choice extracted honey (a blend of the clovers) at 8½ cts. in lots of 5 cases, or 9 cts. in less quantities. Sample, 10 cts. B. WALKER, 6002 28th St., Cicero, Ill.

FOR SALE.—I have left five cases of well ripened extracted honey, white clover and basswood mixed. In new 60-lb. (net) square cans, two in a box; 9½ c. per lb. for the lot. Sample sent. DR. C. G. LUTF, Fremont, Ohio.

COMB HONEY.—4 x 5 x 1½ sections, gathered from the famous Spanish needle; capped even, and light in color; fine quality, grading No. 1 to fancy; and stored in dry heated-room it improves constantly. Price, while it lasts, \$3.00 per case of 20 sections—nine-case crates. Safe delivery guaranteed. Extracted, in 60-lb. cans. Write for prices. Orders filled promptly. F. B. CAVANAGH, Hebron, Ind.

We have on hand 35 cases of two five-gallon cans of Michigan white-clover extracted honey, slightly mixed with raspberry and aster. These two flavors make it a little darker than white honey, and we grade it as light amber. We offer this, while it lasts, at 9 cts. per lb., f. o. b. Medina. This is an exceptionally fine lot, and it will not last very long at this price. In ordering, mention lot No. 99.

THE A. I. ROOT CO., Medina, O.

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WANTED.—Light and light-amber extracted honey. Give description and prices. P. B. RAMER, Harmony, Minn.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

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A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

In Florida. Root supplies. Save transportation. Free catalog. G. F. STANTON, Buckingham, Fla.

Shipping-cases, sections, cans, cheap. Honey wanted. O. N. BALDWIN, Baxter Springs, Kan.

FOR SALE.—A. I. Root supplies: every thing needed in the apiary. Send for catalog. Prices right. SAWYER & HEDDEN, Irvington, New Jersey.

New crop alfalfa seed; 4 lbs. by mail, \$1.10; 50 to 100 lbs., 16 cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

Pyrox fills the barrel with the apples that used to on top. Write BOWKER INSECTICIDE Co., Boston, for book.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—100 Danz. hives (42 with bees in good condition), 300 Danz. supers, sections, foundation, and general supplies. Good range. E. W. SMITH, Troutdale, Oregon.

FOR SALE.—Sweet-clover seed, or Bokhara melilotus. Best fertilizing, hay, grazing, and honey plant known. For particulars write to Mrs. J. T. MARDIS & SONS, Falmouth, Ky.

FOR SALE.—One "Golding" No. 11 Pearl press; chase 7 x 11; self-inking arrangement; absolutely new; never been used. Write for particulars. Good reason for selling. E. H. SHATTUCK, Granby, Ct.

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A bottom-board and feeder combined. Illustrated in January Review. Three-months' trial, 15 cts. Join the crowd, and send in now.

THE BEE-KEEPERS' REVIEW, 230 Woodland Ave., Detroit, Mich.

FOR SALE.—Ten 1½-story (Root) hives, ten-frame Hoffman, Danzenbaker supers, for 4 x 5 x 1½-inch plain sections; nailed, and painted white; used slightly; no brood diseases. Price \$18.00.

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Bargain—going out of business. Lot of dovetailed hives and supers complete; feeders, escape-boards, excluders, foundation, frames in flat, etc.; used but little—some new. For particulars address

WILLIAM JACOBS, Salea, Ohio.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla., the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama). Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

Complete comb-honey outfit for 1000 colonies, consisting of 460 colonies of bees in good condition; hives with worker combs, supers filled with sections, etc. Correspondence solicited from parties meaning business. Address
FRANK RAUCHFUSS, 1440 Market St., Denver, Colo.

Bees and Queens

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, \$1.00; tested, \$1.50; select tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Bradley's Store, Va.

WANTED.—300 to 400 colonies of bees on shares—Southern California preferred; have had experience with all bee diseases; raise queens; will require if required.
JOS. MADLER,
111 Hewitt St., Los Angeles, Cal.

WANTED.—For April delivery, bees in standard L hives, ten frames; must be free from all disease, and on full-drawn wired combs, Hoffman frames preferred. State price and full particulars in first letter. Address
HAIGHT & SMITH,
27 Myrtle Ave., Binghamton, N. Y.

GOLDENS that are golden, gentle, hardy, and hustlers. Golden-to-tip queens, mated, \$1.00; select mated, \$1.50; select tested, \$3.00 to \$5.00. All mated \$1.50 queens replaced. Send for booklet. Nuclei and full colonies.
GEO. M. STEELE,
30 South 40th St., Philadelphia, Pa.

For delivery on Feb. 20 and later I offer 400 three-frame nuclei with tested Italian queen for \$3.50 each; untested queens for 75 cts. each. Satisfaction guaranteed. My strain of Italian bees are developed honey-gatherers, the result of 11 years' record-keeping and selecting. No bee disease has ever been near my bees.
W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies, either for money or honey. January cash discount, 3 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To lease for this year 200 colonies of bees—Italian or German brown; must be free from disease, and in good hives.
S. T. LANCASTER, Tyson, Ida.

WANTED.—To close out about 30 eight and ten frame hives, 35 extra supers, smokers, sections, etc., all new; will make less than wholesale factory price.
C. L. FINK, Cuba, Ill.

Three-months' trial for 15 cts. for the bee-journal that "grandpa" can read. Large type. New cover design. Eight extra pages. Write
THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

WANTED.—To correspond with bee-keepers in Huron, Tuscola, Sanilac, and St. Clair counties, Michigan. We have a good proposition to submit to you. Address
Box B, care of GLEANINGS IN BEE CULTURE,
Medina, Ohio.

Real Estate

FOR SALE.—A first-class apiary and mountain home. Ideal for health-seeker.
H. E. WILDER, Riverside, Cal.

FOR SALE.—Old homestead farm of 108 acres; good buildings; best farm in the neighborhood; \$40 per acre.
H. S. THOMPSON, Franklin Forks, Pa.

Beautiful home, five-room house; 5 lots; 200 colonies of clean bees; 550 supers; 100 extra hives, all fixtures. One block from city limits, on Grand Av. Splendid range; nets half or more this amount every year. Price \$3000—half cash.
ROY TAIT, Grand Junction, Colo.

FOR SALE.—Ten-acre fruit, bee, and poultry farm; 131 colonies of bees; basswood honey, cases of two 60-lb. cans, \$12.00; driving team; buggies, cutter, sleighs, wagon, and harness; game chickens; buffalo robe; bloodhound, and genuine Paganini violin.
ELIAS FOX, Union Center, Wis.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates.
F. H. LA BAUME,
Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

TO HOMESEEKERS.—Are you looking for a town where you can have every advantage of a large city? where rent, taxes, and living are very low? where schools are the best, and a town only one hour's ride from the largest city in Ohio? If so, investigate the opportunities in Medina. Address
PRESIDENT OF BOARD OF TRADE, Medina, Ohio.

Help Wanted

WANTED.—Scientific queen-breeder. Good pay to one who understands the business.
A. Y. CHRISMAN, Kearney Park, Fresno Co., Cal.

WANTED.—A reliable man of good habits, for the season of 1912, to work with bees and on farm; am working several yards. State age, experience, and wages expected. N. L. STEVENS, Moravia, N. Y.

WANTED.—Assistant apiarist. Must be steady, honest, and willing to go to Colorado or Montana as needed.
THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

WANTED.—Unmarried man with experience in queen-rearing and honey production. Steady employment, with board furnished, at once. State experience, salary wanted, etc.
W. D. ACHORD, Fitzpatrick, Ala.

WANTED.—A single man, 25 to 40 years of age, to take care of a small apiary run for comb and extracted honey, and to help with poultry and general farmwork. No farmwork while bees need attention. Steady employment for the right man. State wages expected, with board. Be in work about March 15. A. G. RICH, Rt. 1, Laurel, Mont.

Miscellaneous

FOR SALE.—Typewriter—standard machine, very cheap; good shape. W. A. EHLERS, Carthage, Mo.

Is your thermometer right? Can you test it? The January Review tells you how. Three months for 15 cts.
THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

Position Wanted

WANTED.—Position in apiary. State wages.
EDGAR L. MURPHY, Rt. 2, Red Oak, Ia.

WANTED.—Position in an apiary; 20 years' experience.
E. E. GRIFFIS, National City, Cal.

WANTED.—By an expert (understand every branch of the business), bees on shares or would buy bees. Michigan preferred.

B. F. HOWARD, Union Center, N. Y.

WANTED.—Position by young man of good habits with a bee-keeper in the South Atlantic Coast States; has had experience in a small home apiary. Can give good reference as to character, reputation, etc. MARCUS EGGERS, Rt. 1, Eau Claire, Wis.

Poultry

April-hatched Indian Runner ducks, fawn and white; \$2.00 each; \$3.50 a pair; \$5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

Am booking orders for White Indian Runner duck eggs—true I. R. type, and white; no sports; handsome and hardy. Also eggs from both light fawn and penciled strains. State which you want.

F. J. ARMSTRONG, Nevada, O.

I have a flock of most beautiful Indian Runner ducks, correctly mated, which have proven beyond a doubt to be the twentieth-century egg-machines. I will book orders from now on, and ship when so ordered, 13 pure-white eggs for \$1.00. Satisfaction guaranteed or money refunded. This advertisement will be lived up to, to the letter.

ROBERT BIRD, Rt. 2, Pinckneyville, Ills.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

Baby chicks, 7 breeds, hatch 100,000. Catalog free.
TAYLOR'S POULTRY YARDS, LYONS, N. Y.

FOR SALE.—Prairie State 300-egg incubator for \$10.00.
D. H. COGGSHALL, Rt. 12, Groton, N. Y.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers.

C. M. MYERS, Winchester, Ind.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address
THE VAN DRUST FARMS, Cedar Grove, Wis.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Pigeons and Pet Stock

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty; 17 years' experience. Illustrated matter free. PROVIDENCE SQUAB CO., Providence, R. I. ☞

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 79 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

The Purity of the SWEET-CLOVER SEED

Sold by The A. I. Root Co. is Attested to by the
U. S. Government

READ THIS LETTER:

Brooksville, Ky., March 13, 1911.

The A. I. Root Co., Medina, Ohio.
Gentlemen:—Some time ago I sent to you for a sample of your white and yellow sweet-clover seed. After receiving the samples I sent them to Washington, D. C. The yellow hulled tested 99.71 per cent of pure seed; the unhulled white tested 99.11 per cent of pure seed. I think that is fine. I inclose you the sample that you sent me, and want you to send me 80 lbs. of the same lot that this sample is out of, or some equally good. Send the seed by freight.

Yours truly, H. A. JETT.

We have a booklet, published for free distribution, which tells THE TRUTH ABOUT SWEET CLOVER. Ask for your copy.

We can now supply fresh new seed of 1911 crop in all but the annual yellow at following

PRICES

In lots of—	1 lb.	10 lb.	25 lb.	100 lb.
Hulled Yellow Annual (<i>Melilotus Indica</i>), lb.	15c	12c	11c	10c
Unhulled Yellow Biennial (<i>Melilotus officinalis</i>),	25c	22c	21c	20c
Hulled White	23c	20c	19c	18c
Unhulled White (<i>Meli-</i> <i>lotus alba</i>) per lb.	16c	14c	13c	12c

The prices are all subject to market changes.

As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference.

The A. I. Root Company, Medina, O.

Special Notices

By OUR BUSINESS MANAGER

Our friends in the east will please take notice of the removal of our New York office to new and enlarged quarters at 139 Franklin Street. They are better prepared than ever before to serve their territory promptly, and will be glad to see you when you are in the city.

MAPLE SUGAR AND SYRUP.

Owing to the heavy demand last year for our Ohio rock-maple syrup and sugar we have decided to book orders in advance of the crop at the following prices:

Single one-gallon can or one case of six one-gallon cans, at \$1.25 per gallon.

Two to ten cases of six one-gallon cans to case, at \$1.15 per gallon.

Larger quantities, 75 to 100 gallons, at \$1.10 per gallon.

For a number of years we have not been able to get sufficient quantities of maple sugar to meet the demand. We hope this year to obtain a larger supply. We quote as follows:

1 to 25 lbs. best rock-maple sugar at 15 cts. per lb.

26 to 50 lbs. ditto at 14 cts.

50 to 250 lbs. ditto at 13 cts.

250 to 1000 lbs. ditto at 12 cts.

Our inspection of sugar and syrup as they come in from the producers will be more rigid than ever, as our requirements are based upon U. S. standard regarding the color, flavor, and purity of both sugar and syrup. Let us book your order now, as the first run is considered by all to be the best.

AS THE ADVERTISING DEPARTMENT SEES IT.

What farmer's boy (or farmer either, for that matter) doesn't dread the tedious turning of the old grindstone when tools are to be sharpened? and how many tools are used dull at a considerable loss in efficiency and time because it takes too long to sharpen them the old way! It may seem rather surprising that farmers who are up-to-date in other matters are still using crude methods for this important work, or obliged to send tools of all kinds to town for attention. The fact of the matter is, that until very recently no very successful small machine for all-round sharpening and grinding was on the market; and it is only through the advertising columns of our rural papers that we are becoming acquainted with the improvements.

Did you ever hear of Dimo-Grit? We hadn't until we read a very interesting pamphlet issued by the Luther Grinder Mfg. Co., 107 Stroh Bldg., Milwaukee, Wis. These people are putting out a foot-power machine which has so many useful attachments that it seems to us every farm ought to be supplied with one. The booklet mentioned is worth reading at any rate, and the manufacturer will be glad to send you one on request.

It is surprising how much really interesting and useful matter is put out by advertisers in their booklets and catalogs. It would be a revelation to many to get some of these and read them carefully. Time was when we had to pay anywhere from ten cents to a dollar for information that may be had now for the asking (not that it is any the less valuable, but, on the contrary, it is usually more so), for the manufacturer, having this information on hand, has found that it is good business policy to get it into the hands of a possible buyer with no expense to him. Prospective buyers, and others interested, reap the benefit of this by simply sending a postal-card request, and thereby become pretty well posted on improvements along any certain line in which they may be interested. It will pay our readers to send requests at once for catalogs of such goods as they are likely to need the coming season. Even if purchases are made at local stores when buying time comes, the information found in the catalogs read in the winter evenings will help in coming to a decision as to what line is best suited to make your farm, garden, or apiary yield the biggest returns.

Another example of a catalog which is much more than a price list is the Planet Junior Hand Book, issued by the S. L. Allen Co., Box G, Philadelphia, Pa. No matter whether you are an orchardist, a market-gardener, a cotton-grower, or a farmer raising a great diversity of crops, you will find this

hand-book a mine of useful information on how to make your work and your crops count most and your earnings mount highest.

Convention Notices

The Ohio State Bee-keepers' Association will hold its annual convention on February 21, 1912, at the Commercial Club rooms, Springfield, Ohio. The following is the program:

MORNING SESSION, 10 A.M.

President's address.

Secretary-treasurer's reports.

AFTERNOON SESSION, 1:30 P.M.

Bee Diseases in Ohio, N. E. Shaw, Chief Inspector. Questions of business.

Some recent developments on the wintering question, Editor E. R. Root.

Address by Deputy State Inspector—What has been accomplished by inspection?

Address on sweet clover and forage in and around large cities, Henry Reddert.

Question-box.

Election of Officers.

NIGHT SESSION.

Stereopticon lecture, Bee-keeping in the United States, E. R. Root.

Springfield, O.

A. N. NOBLE, Sec.

PRELIMINARY PROGRAM OF THE MEETING OF APIARY INSPECTORS OF NORTHERN UNITED STATES AND CANADA, AT AMHERST, MASS., FEB. 7 AND 8, 1912.

The Honorable J. Lewis Ellsworth, Secretary of the Massachusetts State Board of Agriculture, will preside.

The meetings will be held at the Entomological Building, Massachusetts Agricultural College Campus.

The purpose of the convention is to bring together those interested in apiary-inspection service in order to discuss the foremost problems which limit the efforts of the inspectors, to the end of raising the standard, increasing the efficiency, promoting uniformity, cooperation, and bee-keeping generally.

The first morning, without a formal session, will be set apart for interviews or for a visit to Amherst College (with a guide), or to the Departments of the Massachusetts Agricultural College.

2:30 P.M., AT ENTOMOLOGICAL BUILDING.

Address of welcome by President Kenyon L. Butterfield, of the Massachusetts Agricultural College. Papers.

Unifications of inspectors' methods, qualifications, and standards.

Cooperation of inspectors: interstate cooperation, Dr. W. E. BRITTON, Entomologist, Connecticut.

History of the advancement of bee-keeping in New York through inspection, CHARLES STEWART, Inspector, New York.

7:30, EVENING SESSION, ENTOMOLOGICAL BUILDING.

Discussion:

The value of requeening or dequeening in European foul brood. Can a general agreement be reached? A. W. YATES, Inspector, Connecticut.

The newly formed Association of Apiary Insp. F. PHILLIPS, Washington, D. C.

The needed control of stray colonies; trees, walls, and ledges.

The box-hive problem. Is not more uniform and rigid control necessary? J. E. CRANE, Inspector, Vermont.

SECOND DAY, 9:30 A.M. ENTOMOLOGICAL BUILDING.

Paper (subject to be announced), Dr. E. F. PHILLIPS, Washington, D. C.

The problem of quarantine stations, MORLEY PETTIT, Canada.

The queen-trade in relation to the spread and suppression of infectious bee diseases, A. C. MILLER, Inspector, Rhode Island.

Inspection records, B. N. GATES, Massachusetts.

Is there some particular subject which you would like discussed or to discuss?

Accommodations:—Amherst House, Prospect House.

Meals may be had also at the college dining-hall upon the Campus. Electric cars to the college.

Inquiries may be addressed to Burton N. Gates, Massachusetts Agricultural College, Amherst, Mass.

ESTABLISHED 1891.

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.

San Antonio, Texas.



Factory and Warehouse.

To Our Friends and Patrons.

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and bee-keepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$80,000.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We pay for beeswax, average clean, 28c cash or 30c in trade. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{1}{2}$ -inch frames, same as described in our catalogue, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives. As usual we start out with 15,000 cases of honey-cans, and more to come. While there is a good season in the ground, and horsemint is up over nearly the entire State, we will have an ample supply of honey-cans ready for the use of bee-keepers, and prepared for shipment at any moment.

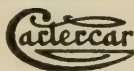
We also desire to invite the attention of our patrons to the fact that, on account of the enormous increase in the demand for our goods last year, it was impossible for us to fill orders as promptly as we should have done, and for that reason we would urge our customers to place their orders as early as possible, in order to avoid delays. It is our special aim to please, and therefore we would ask that the management be immediately notified of any misunderstanding that may arise, assuring our customers that any mistake or misunderstanding that may occur will be cheerfully and amicably adjusted by us.

Judging from the unusual number of orders received as early as November and December of last year, together with the exceptionally favorable prospects ahead, we anticipate a much greater volume of business than ever before; however that may be, it is always a source of gratification to us to please and satisfy our customers, and to that end we shall do our best.

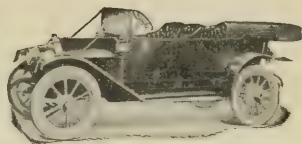
REMEMBER! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **YOU SAVE MORE** by ordering here, for freight to San Antonio has been paid by us.

February early-order discount **2 per cent**

March early-order discount **1 per cent**



A practical car for busy bee-keepers



Here's just the car you want for those quick business trips—and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

When you are in a hurry the Cartercar can be depended on to get you to your destination in double quick time. If it's just pleasure you seek, the car rolls along easily and noiselessly.

The friction transmission of the Cartercar makes it the most reliable yet the most enjoyable of all automobiles. This transmission is so simple that it does

not get out of order—and it eliminates all jerks and jars in starting.

There are any number of speeds at your command. All are easily and noiselessly controlled by one lever. The farther forward the lever is pushed the faster the speed. When the lever is pulled back the speed is reversed.

The chain-in-oil drive is noiseless. The case is dust and grit tight and permits the chain to operate in oil, thus eliminating almost all wear on the chain.

The bee-keeper who drives a Cartercar has more time—can do more work—make more money—and knows the real joy of living.

Let us send you valuable information concerning these excellent automobiles.

Cartercar Company

Pontiac, Michigan

Planet Jr.

Two million workers the world over testify to the durability, economy, labor and time saving advantages of all Planet Jr tools.

Wherever you are, whatever you grow, Planet Jr's are *scientific* aids to bigger profits. Made by a practical farmer and manufacturer. Every tool guaranteed.

No. 25 Planet Jr Combined Hill and Drill Seeder, Double Wheel Hoe, Cultivator, and Plow, capital for large-scale gardening especially, has automatic feed-stopper, seed index, and complete cultivating attachments.

No. 16 Planet Jr Single Wheel Hoe, Cultivator, Rake, and Plow is light, handy, and adapted to almost every garden use. Has leaf guard for close work and lasting steel frame.

FREE! A 64-page illustrated farm and garden book! It's brimful of valuable farm and garden hints, besides showing 55 tools for all kinds of cultivation. **Write today!**

S L Allen & Co

Box 1106S Philadelphia Pa



WHITEWASHING

and disinfecting with the new

"Kant-Klog" Sprayer

gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. **Agents Wanted.** Booklet free. Address

Rochester Spray Pump Co.

207 Broadway, Rochester, N. Y.

What Sprayer?

Use the sprayer that does the most work most thoroughly at the lowest cost.

Brown's Auto Spray

No. 1 fitted with Auto Pop Nozzle—most powerful and efficient hand outfit. Capacity 4 gallons. For large sprayers—Brown's Non-clog Atomic Spray. Write for low prices and **Free Spraying Guide.**
The E. C. Brown Co., 20 Jay St., Rochester, N. Y.



Horse Secrets and Horse Sense

A Liberal Supply of Both for a Dollar

The "Horse Secrets" are told by Dr. A. S. Alexander, the celebrated veterinarian, in a book of that name. This book is the only one in existence which exposes all the tricks that unscrupulous horse dealers and "gyp" traders are up to—such as "shutting a heaver" and "plugging a roarer," the "Bishoping" Trick, the "Widow Dodge" and all the other ways of "fixing" a horse. Saves you from being "stung" by professional dopesters, and gives you the laugh on these slick scamps. Also contains many valuable secrets for feeding and conditioning stock, curing evil habits, etc.

Seven editions of "Horse Secrets"—75,000 copies in all—have been distributed by Farm Journal in the past two years, to the great discomfiture of horse-trading swindlers. We will send out many thousand more this winter.

"Horse sense"—as applied to farming, fruit growing, poultry raising, stock breeding and household economy—is imparted through the pages of Farm Journal.

Edited by men who, most of their lives, have had roosters for alarm clocks and learned farming by making a living at it, there's no flub-dub or hothouse theory in Farm Journal—just sound, practical, common-sense teachings which are coined into cash by those who study and apply them.

If you ever buy, sell, trade or own a horse, you need Horse Secrets, and in whatever branch of farming you are engaged you need Farm Journal. They will save and earn you many dollars—yet

For only \$1.00 we will send you "Horse Secrets," postpaid, at once, and Farm Journal every month for four years.

This is the most liberal combination offer (quality of book and paper considered) ever made. You'll do wisely to take advantage of it today.

If you order promptly, we will send, absolutely free, "Poor Richard Revived"—our splendid new Almanac for 1912.

FARM JOURNAL, 117 N. Clifton St., Philadelphia

Cleanings in Bee Culture



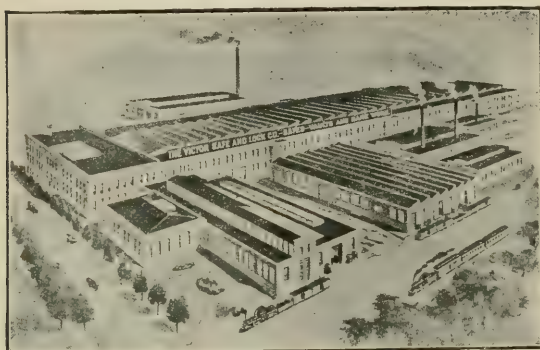
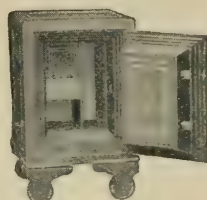
VOL. XL. FEBRUARY 15, 1912, NO. 4

WHY NOT MAKE \$200.⁰⁰ A MONTH - - That's \$50.⁰⁰ a Week, almost \$10.⁰⁰ a Day



Selling Victor Safes and fire-proof boxes to merchants, doctors, lawyers, dentists and well-to-do farmers, all of whom realize the need of a safe, but do not know how easy it is to own one. Salesmen declare our proposition one of the best, clean-cut money-making opportunities ever received. Without previous experience **YOU** can duplicate the success of others. Our handsomely illustrated 200-page catalog will enable you to present the subject to customers in as interesting a manner as though

you were piloting them through our factory. Men appointed as salesmen receive advice and instructions for selling safes, giving convincing talking points which it is impossible for a prospective customer to deny. Why don't **YOU** be the first to apply from your vicinity before someone else gets the territory? We can favor only one salesman out of each locality.



The 25th anniversary of our company was celebrated by erecting the most modern safe factory in the world. **Wide-awake men** who received our special selling inducement, rendered it necessary to double our output. We are spending many thousands of dollars enlarging our sales organization, but to learn all particulars, it will cost you only the price of a postal card.

Ask for Catalogue 16 T.

THE VICTOR SAFE & LOCK CO.

CINCINNATI, OHIO

Our New Home. Capacity 20,000 Safes Annually.

COLD-FRAME OR HOT-BED SASH.

GET OUR NEW FREE BOOK: How to Make and Run a Hot-bed



Single sash set up ready to use.

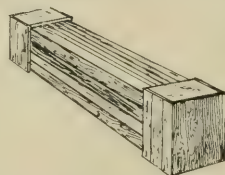
Make and Run a Hot-bed, which gives full directions for this work, and tells what crops are most easily grown. Copies are sent free upon request. Prices on sash are as follows:

One sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each; put together, 10 cts. each extra. Glass 8x10, just right for the above, \$2.50 per box of 90 lights; 5 boxes, \$2.30 each; 10 boxes, \$2.20 each. Prices of glass subject to change. Get our list price at time of ordering.

Some years ago we had a call for hot-bed sash and made up a small order. Our wood-working facilities being most complete we found it possible to manufacture sash of first-class quality at a price slightly under that charged elsewhere for an article of similar quality. Orders continued to come in occasionally, and we finally listed cold-frame or hot-bed sash in our catalog. Since then the demand has grown each year.

We make the sash of regular size, 3 ft. 4 in. by 6 ft. for four rows of glass 8 in. wide. Each sash holds 28 panes of glass, size 8 by 10 in. If any prefer larger glass we will furnish sash for three rows of 11-in. glass at the same price. Sash are made of cypress and are almost impervious to decay. Sash are usually shipped from here knocked down at a low rate of freight, and can be put together by anybody, as they are mortised and tenoned in the regular way. They are 1½ in. thick, outside bars about 2½ in. wide, and inside bars about 1½ in. The bars are grooved to slip the glass in place.

Each season we ship sash in carload lots to large seed-houses, and we have complimentary reports on their quality. It is both interesting and profitable work to maintain a hot-bed, and every one who has a garden spot should build a cold-frame. We have prepared a small book entitled "How to



Bundle of 5 sash, knocked down and crated for freight shipment.

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Illinois—W. T. Falconer Mfg. Co., 117 No. Jefferson St., Chicago.

Pennsylvania—A. M. Applegate, Reynoldsville. J. R. Rambo, Collingdale, suburb of Philadelphia.

New York—Deroy Taylor, Lyons. Hudson Shaver & Sons, Perch River. W. T. Falconer Mfg. Co., Falconer.

Texas—J. W. Reid, Uvalde. A full carload of brand-new bright hives, Uvalde covers, all-wood frames, will be in stock when you read this. Mr. Texas Bee-keeper, do you know what **FALCON** quality means? Now is the time to find out. Get a trial lot of our well-made supplies, and you will never use any other. Let Mr. Reid have a list of your wants for quotation and a request for a Red Catalog.

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If you don't find a dealer in your locality, don't think there is none. Drop us a postal for the name---for there are many others---or better still give us a list of your wants for quotation at our nearest dealer.

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February early-order discount at all **"falcon"** dealers 2 per cent.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber; comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, Feb. 2. **BLAKE-LEE CO.**

CHICAGO.—Fancy white comb honey sells at 17 to 18 cts., and is in good demand. Other grades sell at from 1 to 5 cts. per lb. less, according to color, kind, and condition. Extracted is slow of sale, with the white ranging from 8 to 9; amber, 7 to 8. Beeswax is quotable at 30 to 32. Chicago, Feb. 3.

R. A. BURNETT & CO.

INDIANAPOLIS.—Demand is good for best grades of comb and extracted honey. White comb sells for 18 cts. in ten-case lots, finding ready sale. Amber grades are in slow demand at much lower prices. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, Feb. 2. **WALTER S. POWDER.**

SCHENECTADY.—Our market is bare of desirable comb honey, and there is but little demand. There seems to be a considerable stock of dark and amber extracted still in the hands of producers who are getting anxious to sell; but as buyers are holding off, prices have a downward tendency. Just now 7 cts. is the top price.

Schenectady, Feb. 5.

CHAS. MACCULLOCH.

CINCINNATI.—The market on comb has fallen off somewhat, the only demand being for fancy white, selling in a retail way at \$4.00; to jobbers, at \$3.60 to \$3.75, according to quantity. Extra white extracted, in 60-lb. cans, brings 10 cts.; light-amber ditto, 8½; amber in barrels, 7 to 7½. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, Ohio, Feb. 1. **C. H. W. WEBER & CO.**

ST. LOUIS.—The honey market is unchanged since our last. We quote fancy white comb honey at 17; No. 1, 15 to 16; light amber, 13 to 14; dark, 7 to 10. Broken and leaking honey sells at much less. Extracted white-clover honey is nominal at 8½ to 9; alfalfa, 8 to 8½; Southern light amber, 8 to 8½ in cans; 7 to 7½ in barrels and half-barrels; California light amber in cans, 8 to 8½. There is a good supply of California and Southern amber honey on the market; the same, however, is bare of clover and other varieties of extracted honey. Beeswax is in good demand. We quote prime at 30 cts.; impure and inferior, less.

St. Louis, Mo., Feb. 7. **R. HARTMANN PRODUCE CO.**

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.,** gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

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Beeswax taken in exchange for supplies or cash.

We are 75 miles west of St. Louis. Shipping facilities good.

JOHN NEBEL & SON SUPPLY CO.,
High Hill, Montg. Co., Mo.

Honey Markets, continued from page 2.

ALBANY.—There is practically no honey market now to report. This is the first time in our memory when we have not had a case of comb on hand. We have a good demand for any grade of comb honey now at prices ranging from 15 to 18 on white and 12 to 15 on dark and mixed grades. Extracted honey is more plentiful at 7 to 7½ for dark and 8 to 9 for light. Beeswax, 32.

Albany, Feb. 3.

H. R. WRIGHT.

ZANESVILLE.—There is still a little honey arriving—enough, evidently, to supply the demand, which is very slack now. There has not been any change in prices since our last report. No. 1 white comb brings 20 cts. in single-case lots; best quality of extracted in 60-lb. cans, 10 to 12. Producers are offered for beeswax 29 cts. in cash or 31 in exchange for supplies.

Zanesville, O., Feb. 3.

E. W. PEIRCE.

DENVER.—The supply of strictly white comb honey is about exhausted, and prices are, as a consequence, higher than they otherwise would be, as the demand is light. We quote No. 1 white comb honey, per case of 24 sections, \$3.60; No. 1 light amber, \$3.35; No. 2, \$3.15. White extracted brings 9 cts.; light amber, 8; strained, 6½ to 7½. For clean yellow beeswax we pay 26 cts. in cash or 28 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, Feb. 3. F. Rauchfuss, Manager.

BUFFALO.—The demand for white comb honey has improved very much of late. The market is very firm, and we think it will soon be higher. There is but very little in this market, and but little to come in from around this part of the country. There is a marked improvement for under grades of comb honey; some demand for dark extracted; not much call for white. We quote fancy white comb honey, at 17 to 18; No. 1 ditto, 16 to 17; No. 2 ditto, 12 to 14; dark, 11 to 12; white extracted, 8 to 9; dark ditto, 7 to 7½. Beeswax, 28 to 30.

Buffalo, N. Y., Feb. 7.

W. C. TOWNSEND.

THE NATIONAL BEE - KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

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Amanda, Ohio, Jan. 26, 1912. E. WILLIAMSON.

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DOOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now before the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1912, for only \$1.00, is certainly a big bargain for you. Send the \$1.00 now, and we will begin your subscription with January 1, 1912, and mail you the book. Sample copy of the Bee Journal free. Address



GEORGE W. YORK & CO.,

117 No. Jefferson St., Chicago, Ill.

New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

DISCOUNT: Discount for February for cash orders is two-per cent.

THE A. I. ROOT COMPANY,
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"Griggs Saves You Freight."

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Is the Best Point to
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Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

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Which are you interested in?
 Send your name for our 1912 catalog.
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M. H. Hunt & Son
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W. H. Laws

will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

Prices: Tested, \$1.25; 5 for \$5.00; Breeders, each, \$5.00. Address

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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Boston Is the Shipping Center of Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. Send for catalog.

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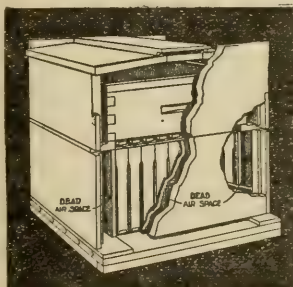
182 Friend Street BOSTON, MASS.

ALSIKE - CLOVER SEED.

Medium Red Mammoth, Alfalfa, Sweet Clover, Bluegrass, Redtop, Rape, Millet, etc. Also SEED CORN. Catalog of Aplyry Supplies free. Write for prices on seeds and samples.

F. A. SNELL, - Milledgeville, Carroll Co., - Illinois.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has $\frac{1}{2}$ material in the outer wall, and is not cheaply made of $\frac{3}{4}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

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Bingham Smokers

Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, $\frac{3}{4}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by

BINGHAM
 SELF-CLEANING
 BEE SMOKER



A MAIN POINT OF DISTRIBUTION!

NATURALLY the center of our large export business, and logically the source from which a majority of Eastern Bee-keepers expect their supplies to come, our NEW YORK BRANCH has been made A MAIN POINT OF DISTRIBUTION for all goods in the big ROOT LINE. Equipped for service in the fullest meaning of the word, well stocked, well managed, familiarity with every appliance for successful bee-keeping and the highways and byways of shipping, here, as perhaps at no other point are we thoroughly prepared to care for the wants of our Eastern bee-keeping friends.

1912 Supplies and Stock.

We have a complete line of all goods listed in the ROOT catalog, and carloads of fresh-stock goods come on continually from our factory. Orders for special-sized goods may be sent here—and we will order same from our factory to be shipped in car to New York and we will re-ship from here, thus saving an item on your freight charges. When ordering goods, be specific. Try to use our "KEY TABLE" as much as possible in specifying hives or parts of hives ordered. If not familiar or uncertain of articles ordered or letters representing some of our goods, give illustration and page number.

Shipping Facilities.

Insure yourself of quick delivery by sending your orders to New York. Here is the terminal of nearly all railroads—north, west, south, and the main steamship lines whereby we can ship goods direct to you without change or delay. All express companies call at our warehouse daily, thus assisting us in serving you. Our facilities for shipping by freight, express, and boat are truly unexcelled. Avail yourself of this opportunity of quick delivery and low shipping charges which you certainly will obtain by ordering your goods of the New York Branch of The A. I. Root Co.

Packing.

We do not charge for packing, boxing, or delivering to freight offices in New York. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. New York. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from New York.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is too Small or Large for Our Personal Attention.

OUR LOCATION.—We are now located in the Sapco Building in the downtown district. Our office is convenient to surface, subway, and elevated stations and to all downtown ferries. Here you will find well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition, and our manager or attendant always present to explain our appliances and discuss the subject of bee-keeping. You and your friends are always welcome.

REMITTANCES.—Remittance with orders should be made by draft, check, postal money order, express money order, or stamps. Do not remit in currency or coin, unless registered, as it often goes astray. We do not care to ship C. O. D.

Order your supplies early. Do not wait until you are in a rush for them. Order now. We want your acquaintance.

Our Manager at the New York branch is thoroughly familiar with every appliance required for successful bee-keeping. His knowledge of outfits for beginners will be found especially beneficial to suburbanites who may want to engage in bee-keeping on a large or small scale. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

Export Orders.—We pay especial attention to all orders for export. For the use of foreign customers we can furnish catalogs in Spanish and French.

**THE A. I. ROOT COMPANY,
NEW YORK CITY.**

ESTABLISHED 1891.

TOEPPERWEIN & MAYFIELD CO.

Cor. Nolan and Cherry Sts.

(Incorporated)

San Antonio, Texas.



Factory and Warehouse.

To Our Friends and Patrons.

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and bee-keepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$80,000.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We pay for beeswax, average clean, 28c cash or 30c in trade. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{1}{2}$ -inch frames, same as described in our catalogue, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives. As usual we start out with 15,000 cases of honey-cans, and more to come. While there is a good season in the ground, and horsemint is up over nearly the entire State, we will have an ample supply of honey-cans ready for the use of bee-keepers, and prepared for shipment at any moment.

We also desire to invite the attention of our patrons to the fact that, on account of the enormous increase in the demand for our goods last year, it was impossible for us to fill orders as promptly as we should have done, and for that reason we would urge our customers to place their orders as early as possible, in order to avoid delays. It is our special aim to please, and therefore we would ask that the management be immediately notified of any misunderstanding that may arise, assuring our customers that any mistake or misunderstanding that may occur will be cheerfully and amicably adjusted by us.

Judging from the unusual number of orders received as early as November and December of last year, together with the exceptionally favorable prospects ahead, we anticipate a much greater volume of business than ever before; however that may be, it is always a source of gratification to us to please and satisfy our customers, and to that end we shall do our best.

REMEMBER! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **YOU SAVE MORE** by ordering here, for freight to San Antonio has been paid by us.

February early-order discount **2 per cent**

March early order discount **1 per cent**

WITH OUR READERS AND ADVERTISERS

To many not really well acquainted with our readers it might appear that the columns of a bee-journal might not be especially productive of results for poultry-supply advertisers; and yet when we consider the close relation between the two industries it isn't to be wondered at that the man who keeps bees probably has poultry too; or if he hasn't he could be easily induced to take up this profitable branch of rural or farm life.



Time was when every farmer and man with a small place kept "chickens" with more or less indifferent results. In the last few years the business has been raised to the dignity of a profession, and thousands are making comfortable incomes from poultry alone. In driving through the country you will notice in almost every farmyard a flock of well-kept high-grade stock, with well-painted sightly buildings for them in the back-ground; and if you would take the trouble to go into one of these places you would find them equipped with the best of every thing in the line that the market affords.



And what has brought about this change? Why, advertising, of course! Manufacturers and breeders knew long ago that there was a deal of money to be made in the poultry business rightly conducted; and the only way to convince the farmer and home-owner of the ultimate satisfactory returns from an investment in the best supplies and the best stock was through the advertising columns of his favorite paper. And right here is where GLEANINGS comes in; for it is the favorite paper of a large per cent of its readers, and actual reports from advertisers show that they frequently get as good (or better) results from our paper as they do from the poultry-journals themselves. Just today we have a letter from Ambrose & Knight, of Urbana, Ohio, advertisers of baby chicks, who have carried a small advertisement in our classified columns for a season or two, in which they say, "We are well pleased with the result we had last year from our advertising with you." GLEANINGS not only brings inquiries but orders and re-orders.



Results to the advertiser are results to the reader, for satisfactory returns from a paper to a manufacturer or breeder induce him to give of his best to the readers of that paper. One hardly needs to buy expensive poultry-books if he reads such advertisements carefully and profits by the information contained in the catalogs and printed matter sent out by advertisers.

If you are at all interested in poultry (and it seems to us every one of our readers ought to be) it will pay you to study the advertisements in this paper and to send for printed matter from such as appeal most to you. Bees and poultry dovetail nicely, and you will enjoy the poultry department by our senior editor more than ever if you can duplicate some of his experiences in your own back yard.

"If goods are wanted quick, send to Powder."

(Twenty-third year).



He Comes Up Smiling

When he gets his
material here.

A large and complete stock of the Root goods on hand at the factory schedule of prices. My system of rotating does not permit of any accumulation of old stock; my comb foundation is always fresh from the mills; sections fresh and bright, and hives have all of the latest improvements. Early-order discounts are still available. If you have not been getting your goods here I am sure I can interest you, and just at this season of the year the question of supplies is an interesting one. My stock of goods, my equipment and shipping facilities, would be a revelation to any bee-keeper who can call and see for himself. My new catalog is the most complete that I have ever sent out, and explains much as to how the Pee Supply business is handled in Indiana.

HONEY—As heretofore I still maintain quality, and have a large stock on hand at all times of the very best that can be produced, and my prices will be found correct.

BEE SWAX—You can now avail yourself of 31 cents per pound for your wax by sending it here in exchange for supplies, and wax is the same as gold coin to me at all times.

Walter S. Powder, Indianapolis. Dear Sir:—Referring to the bill of goods ordered from you recently, I will say that I was much pleased with the goods and also with your promptness. *I sent to Powder and got them quick.* Will be in need of more goods soon and will get them *quick*. Again thanking you,
JEFFERSONVILLE, IND. ORLANDO COLEMAN.

If you have not received my new catalog in the regular way I will be thankful for a postal with your name and address.

WALTER S. POWDER, Indianapolis, Ind.

359 Massachusetts Ave.

This Is Advertising You Can't Buy.

Nowadays any one in the Bee-supply business, with the necessary money, can advertise.

But there is one kind of advertising that is not bought and can not be bought. These are the good words that go from mouth to mouth about

LEWIS BEEWARE DADANT'S FOUNDATION AND THE SOUTHWESTERN BEE CO.

We urge you to ask any bee-keeper about these goods which are being sold by us exclusively in Texas, and also about the

SOUTHWESTERN BEE COMPANY

You are the jury and you are the judge.

Texas Bee-keepers!

We constantly carry on hand at our new place of business, 1022 South Flores Street, San Antonio, several carloads of the famous Lewis Beeware and tons of Dadant's Foundation as well as American Can Company's cans in large quantities.

Come right to us when you are in the market. We sell what you have to buy, we buy what you have to sell.

Don't experiment with poor bee-hives or inferior foundation.

Let Lewis and Dadant and The Southwestern Bee Company be your slogan, and you will go into port at the end of the season with a full cargo successfully produced.

SOUTHWESTERN BEE COMPANY

1022 South Flores Street

SAN ANTONIO, TEXAS.



YOU Can't Go Wrong In Ordering a World's Cham- pionship Belle City Incubator and Brooder

Right From This Advertisement
On 1, 2 or 3 Month's Home Test

MAYBE you want to get your machine quick—maybe you want to be ready for early hatches. If you do, you take no risk whatever over any risk you take when ordering from anywhere else. In ordering direct from this advertisement, you save time and trouble and I guarantee everything to be satisfactory.

Here is my proposition—for only \$7.55 I will ship to you, all freight prepaid East of the Rockies, my 140-Egg Double World's Championship Belle City Incubator—the machine that has won the World's Championship in over five thousand hatches. Read description—

My 140-Egg Belle City World's Championship Incubator has simple, perfect self-regulator correct hot water heating system, copper tank, and boiler, safety lamp, double walls and double door, with dead air space all over, with roomy nursery and strong egg tray. Of course the thermometer is right; I use the "Tycos." I also supply egg-tester, burner, funnel, everything you need including valuable instruction book on operation, hatching and care of chicks.

For only \$4.85 I will deliver to you my celebrated 140-Chick Belle City Brooder—the brooder

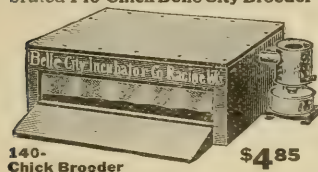
that is guaranteed to raise more healthy chicks than any other brooder made.

The Belle City Brooder is as perfect as the Incubator—140-chick size—and my price is \$4.85. It's double-walled, hot water, top-heated, metal safety lamp and burner, wire runway yard with platform. Absolutely the most perfect chick raiser made today.

Combination \$11⁵⁰ Freight Offer, Only ^{Prepaid} East of Rockies

Ordered together, my 140-Egg Belle City Incubator and 140-Chick Brooder, will cost you only \$11.50 all freight prepaid East of the Rockies. This saves you 90c which will furnish all the oil you will want to use this season on your machine. I guarantee to ship orders received from this advertisement on the same day received either from my warehouse branches located at Buffalo, Kansas City, St. Paul or Racine. This insures quick action—insures your getting started early.

Read the letter from the Commercial and Savings Bank of Racine at the bottom of this advertisement as your protection. Why not order now or let me send you my portfolio, "Hatching Facts"—the most unique piece of poultry literature published different from all the rest better than the best. This portfolio shipped with each machine ordered, or I will send it to you for your name on a postal card.



140-
Chick Brooder

\$4.85

**JIM ROHAN, President
BELLE CITY INCUBATOR CO.
Box 69, Racine, Wisconsin**

"To Whom It May Concern:

Jim Rohan, President of the Belle City Incubator Company, is one of our depositors—perfectly reliable in every way and people are perfectly safe in ordering from his incubators and brooders from his advertisements, sending money in advance, as we have known him for years and know he will fulfill all agreements.

(Signed)

C. R. CARPENTER, Cashier."



140-Egg
Incubator

\$7⁵⁵

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Our 244-page Illustrated "Poultry Growers' Guide for 1912" now ready! Tells you Bee Raisers how *easily* you can add poultry to your line and make *big profits*. It's all in *starting right* with the *right tools*—following *right advice*. Learn all about

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1877-1912

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"Raising Poultry for Pleasure and Profit."
Explains why STAHL'S EXCELSIOR with its many exclusive features is the one you want.
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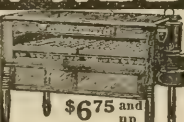


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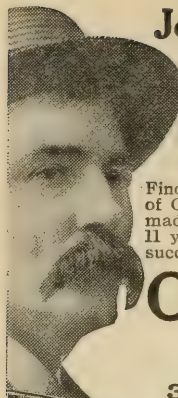
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Start right on biggest profits. Write to
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Latest Book "Profitable Poultry,"
finest published, 120 pages of practical facts, 160 beautiful half-tones. Tells how to breed, hatch, feed and market to make big money. Tells about big poultry farm, 45 pure-bred varieties. Beautiful, hardy and money makers. We start you right. Lowest prices on fowls, eggs, incubators, etc., sent for 5c. Berry's Poultry Farm, Box 97, Clarinda, Iowa.





Johnson Says:— "This Little Ad Will Make A Lot of Money for Chicken Raisers Who Send Me a Postal."

Find out how over 325,000 owners of Old Trusty Incubators have made millions of dollars the last 11 years raising chickens most successfully. All told in

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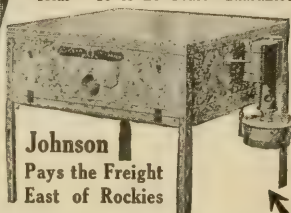
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Trial — 10 to 20 Years' Guarantee



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Pays the Freight
East of Rockies

Get Johnson's latest book whether you buy of him or not. It's free and welcome to you. Worth many dollars to you if you are going to raise chickens. A real, practical, living experience book—every page a poultry sermon. Over 300 actual photographs. Decide after you get it. Write postal today to

M. M. JOHNSON, Incubator Man,
Clay Center, Neb.

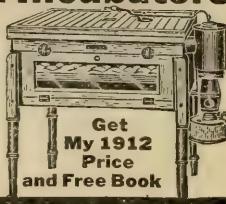


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48 BREEDS

Fine pure-bred chickens, ducks, geese, and turkeys, Northern raised, hardy, and very beautiful. Fowls, eggs, and incubators at low prices. America's greatest poultry-farm. Send 4 c. for fine 18th Annual Poultry Book.
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How to Get Big Poultry Profits.

Edgar Briggs, the most successful poultry expert in America, tells how to make the greatest success with poultry in his book,

Profits in Poultry-keeping Solved.

It covers every branch of poultry-keeping, and contains the many priceless secrets which you must know in order to get the largest profits from poultry. It also tells how to make the best poultry food for from 10 to 15 cts. per bushel. Briggs' System calls for less equipment, labor, and expenses than other plans, and by it one man can easily care for 2000 layers and 3000 chicks.

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you should get our new book, just published.

The Smith Method of Poultry-keeping,

which gives the best, most comprehensive, and practical system we know of for keeping many fowls on a small lot. It cuts down the work and care required to the minimum, and does not require elaborate equipment. It is also well adapted for large plants.

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For \$1.00 we will send you your choice of either book, and include POULTRY SUCCESS, the leading poultry magazine, for one year. Regular subscription price of POULTRY SUCCESS, 50 cts. per year.

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The Story of 25 Years
with Poultry and Farmers and Fanciers will help many Farmers get more eggs—better prices; make more and save more money; tells things few folks know on making money with hens. Find out about **America's Largest Line of Incubators and Brooders**, and get six poultry chapters written by Robert Essex himself—It's all in our Free Catalog—Write today. Address **Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.**

735 Buys a 125 Egg **NATIONAL INCUBATOR**. Sheet steel body, lined with asbestos and interlined with strong fibre board, sealed with metal strips at corners and edges. Air tight, cold, damp, lice proof. Incubator and Brooder \$9.35. **Money back if dissatisfied.** Send for booklet. **N.I.Co. NATIONAL INCUBATOR CO.** 1190 19th St. Racine, Wis.



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more eggs; larger, more vigorous chicks; heavier fowls, by feeding cut bone.
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GREIDER'S FINE POULTRY
Book and calendar for 1912 contains 200 pages. 72 varieties pure bred, 62 colored plates. Many other illustrations, descriptions. Incubators and brooders. Low prices on all stock eggs. How to raise and make hens lay. Get my plans. They all say it's great—this book—only 15 cents.
B. H. GREIDER, Box 65, Rheems, Pa.



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The Stewart Automatic Awl. Feeds wax thread from spool. It does the work of a harness makers machine. Is indispensable for repair work. Agents wanted. \$1.25 postpaid. Send for cat.
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FROM FACTORY DIRECT TO FARM



26-inch Hog Fence.....	15c.
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FREIGHT PAID STEEL TIRES \$8.75

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

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Have you ever worked at your sprayer pump for an hour (or longer) with your hands in the solution? You won't if you have Iron Age No. 191 Vertical Barrel Pump. It attaches on the outside of any barrel—easy to get at. Bronze ball valves; hemp packing; automatic dasher inside; 4 row attachment. Low price. With or without barrel.

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Recent test by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle Lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Better light than gas or electric. Fully guaranteed. Our burners fit your old lamps. Ask for Catalogue M and learn how to get

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Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted, Booklet Free.

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"It's the greatest general purpose implement on the farm", writes an Ohio farmer of **No. 72 Two-Row Pivot Wheel Cultivator, Plow, Furrower, and Ridger.** No other implement in large crops saves as much

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Think of the saving in cultivating perfectly at one time 2 rows of potatoes, corn, beans, etc. in rows 28 to 44 inches apart! Simple and works like a charm in check and crooked rows, and in rows of irregular width. Never leaves open furrows next to plants. Cultivates crops up to 5 feet high and covers 2 furrows of manure, potatoes or seed at one passage. Designed by a practical farmer; fully guaranteed.

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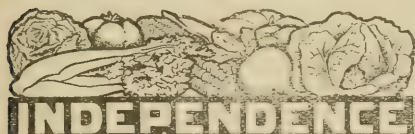
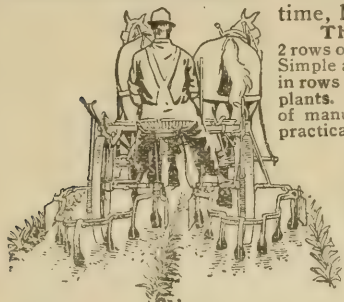
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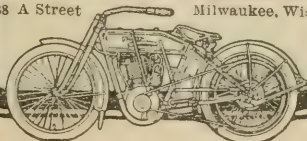
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No running alongside or hard pedaling needed to start the Harley-Davidson. Just throw forward the **Free-wheel Control** lever and glide away. The **Full-Floating Seat**, another exclusive feature, takes up the joints and jars which are so objectionable on the ordinary motorcycle. Every road seems like a boulevard. The Harley-Davidson holds the world's record for economy and other notable records. Send for Booklet.

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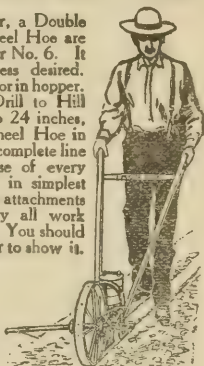
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Prevent blight,
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40 styles and sizes. For 5 acres of field crops, or 1 acre of trees, use Auto Spray No. 1 and power, 4 gal. capacity—Auto Pop, non-clogging nozzle—all kinds of sprays with instant change. For large sprayers, Brown's

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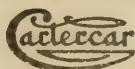
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Here's just the car you want for those quick business trips—and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

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FEED IS HIGH AND GOING HIGHER

The successful poultryman knows that a little mixed grain, corn meal, beef and roots cooked together and served warm on a cold day will make hens thrive and lay every day.



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TRY A COLUMBIA!



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2 to 16
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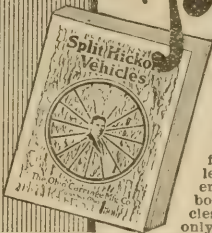
On the hardest job you can find. It won't buck or complain; feed it on kerosene, gasoline, distillate or any liquid fuel. Runs on natural gas as well—no waste—no repairs. Saves hired help—works night and day. Try it 15 days—if it don't suit, send it back—7,000 in use—they don't come back. Right now, save big money on a Columbia! If you act quick, write today for 1912 plan and free Book full of engine facts. **Columbia Engine Company**
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To Mark Chickens
CHEAPEST AND BEST
12 for 15c; 25-20c; 50-35c; 100-60c.
Sample Band Mailed for 2c Stamp.
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H. C. Phelps, Pres.



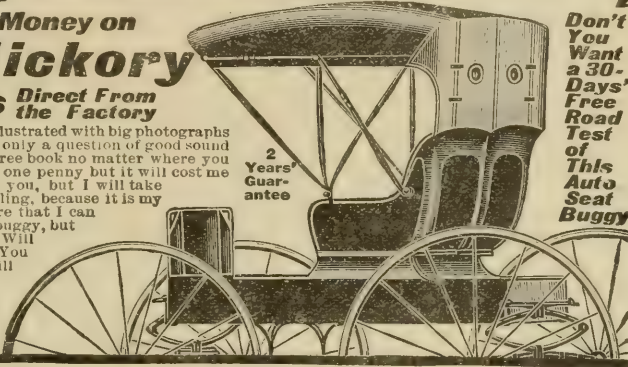
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It's the best one I have ever gotten out. It has more styles to select from, both in vehicles and harness. Why try to select a buggy from two or three shop-worn, dust-covered samples, when I will send right to your home a book that shows in big, actual photographs more vehicles than you can find in 25 stores. Local dealers carry only a few styles to select from. I make 125 styles of automobile seat buggies, surreys, phaetons, road carts, etc., and a full line of harness. All made-to-order to suit your taste.

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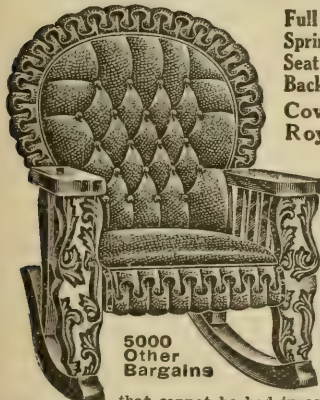
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The Ohio Carriage Mfg.
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Don't You Want a 30-Days' Free Road Test of This Auto Seat Buggy

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Full Spring Seat and Back—**\$3.85**

Covered in Best Royal Leather

Look at the picture; doesn't this Rocker look inviting with its high, broad, shapely back and deep roomy spring seat? It's made to last forever, and its wide arms, supported by six neatly turned smooth spindles, and massive front carved posts, give it the exclusiveness and style

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Frame thoroughly seasoned oak, high golden and gloss finish. Best quality Black Royal Leather; workmanship first-class. Price but \$3.85 makes it the biggest bargain ever offered. We can afford such values because we own our own timber lands, saw mills, factories and salesrooms. Money back if it is not worth double. Send for our large FREE cash catalogue of Furniture, Rugs, Curtains, etc. Learn at once how much cheaper and better you can buy for cash direct from the manufacturers. We save you all extra profits. Write NOW; better still, enclose \$3.85 for this comfortable rocker. Order by number 670. Address: (11-4)

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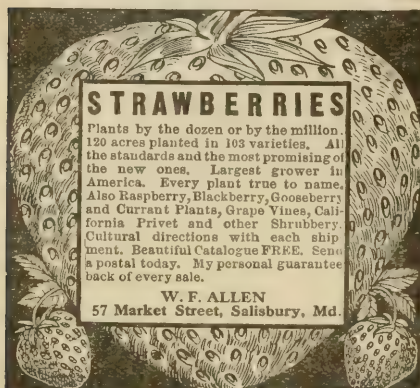
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THE truth of this famous "slogan" is attested by thousands of the most progressive planters throughout the world, who rely year after year upon Burpee's Seeds as The Best Seeds That Can Be Grown! If **you** are willing to pay a fair price for **Quality-Seeds**, we shall be pleased to mail, without cost, a copy of **Burpee's Annual for 1912**. Long known as "The Leading American Seed Catalog," this Bright New Book of 178 pages tells the plain truth and is a safe guide to success in the garden. Do you want it? If so, **write to-day!** Address

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An average profit for users of my plants. Every plant guaranteed strong rooted, true to label, free from disease. 21 years' experience back of every sale. I devote all my time to breeding strawberry plants. Have 200 acres. I will select varieties best suited to your soil and climate. Write today for my Great Strawberry Book, free. Tells how to buy, plant, cultivate, market. 65 engravings. **W. W. THOMAS**, The Strawberry Plant Man, 260 Main Street, Anna, Ill.

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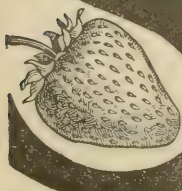
We have issued and send free, to anyone interested in good Corn, a booklet telling how we planted the 10 prize ears of Corn, its yield, and other instructive facts. It is nicely illustrated from actual photographs.

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We give our 1912 customers a start of the \$350.00 Corn **FREE**

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Plant the quality grape CATAWBA -- CONCORD

The grape for everybody everywhere

A cross between the grand old Catawba and the ever-popular Concord—so scientifically made that it unites all their merits with no defects. Equal in quality to the finest hot-house grapes—as easily grown as the Concord. Bright wine red in color, unexcelled as a keeper and shipper, as prolific as any grape grown. A ten years' test without petting has proved its superiority.

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Large 80-page, illustrated catalog gives full details of this remarkable grape; also of the best Raspberries, Blackberries, Strawberries, Currants, Gooseberries, Garden Roots, Hardy Perennial Plants, Shrubs, Hedge Plants, Vines, Roses, etc., and tells how to plant and grow them. Free to everybody. Write to-day.

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Salzer's Potatoes are known the world over for extreme earliness. The editor of the Rural New Yorker gives to Salzer's Earliest Potato the astonishing yield of 464 bushels per acre!

Salzer's Earliest Potato Collection.

Composed of four rare earliest and one later sort, separately packed, full weight, per bbl. only \$4.00. Catalog tells!

For 16 Cents.

10,000 kernels of splendid Lettuce, Radish, Tomato, Cabbage, Turnip, Onion, Celery, Parsley, Carrot, Melon and Flower Seeds producing bushels of vegetables and flowers for 16c postpaid.

Big vegetable and farm seed catalogue free for the asking.

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Our seeds are selected and grown with special reference to the South. We not only have the right seeds but we know what to recommend for the best results here. Our prices are right. Our catalog is free, and contains valuable information.

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Apple Trees.

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We offer to the planter 200,000 Apple trees, 800,000 Peach, 50,000 Pear, 50,000 Plum, 100,000 Cherry, 300,000 Carolina Poplar, and millions of Grape and small fruits. Secure varieties now. Pay in the spring. Buy from the man who has the goods and save disappointment at planting time. Catalog free to everybody. **Sheerin's Wholesale Nurseries, Dansville, N. Y.**

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Buckwheat and amber extracted honey ripened on the hive. Price 7 cents per lb. in 225-lb. kegs. R. T. SHULTS, Freeville, N. Y.

FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Clover honey in 160-lb. kegs, 9 cents; buckwheat in kegs or 60-lb. cans, 7½. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Clover honey ripened on the hive, in 60-lb. cans; gathered in June, extracted in August. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—White and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans. J. P. MOORE, Morgan, Ky.

We have on hand 20 cases of two five-gallon cans of Michigan white-clover extracted honey, slightly mixed with raspberry and aster. These two flavors make it a little darker than white honey, and we grade it as light amber. We offer this, while it lasts, at 9 cts. per lb., f. o. b. Medina. This is an exceptionally fine lot, and it will not last very long at this price. In ordering, mention lot No. 99. THE A. I. ROOT Co., Medina, O.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

Wants and Exchanges

WANTED.—Foot-power saw. Give price and make to W. N. BROWN, Port Albert, Ont., Can.

WANTED.—To exchange a 13-inch rose turbine water-wheel for cash, wax, foundation, sections, 1912 queens, small gasoline-engine, or extracted honey. P. W. STAHLMAN, West Berne, N. Y.

WANTED.—To exchange Root bee-supplies, either for money or honey. February cash discount, 2 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To lease for this year 200 colonies of bees—Italian or German brown; must be free from disease, and in good hives. S. T. LANCASTER, Tyson, Ida.

Three-months' trial for 15 cts. for the bee-journal that "grandpa" can read. Large type, New cover design. Eight extra pages. Write THE BEE-KEEPERS' REVIEW, 230 Woodland Ave., Detroit, Mich.

For Sale

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In Florida. Root supplies. Save transportation. Free catalog. G. F. STANTON, Buckingham, Fla.

FOR SALE.—Quantity of ten-frame hives, fixtures, magazines, etc. EDWIN EWELL, Litchfield, Mich.

WANTED.—Second-hand hives for cash. Address GLEANINGS, Medina, O. 3613

Free—catalog of best and cheapest bee-supplies on earth; also of fancy poultry. H. DUBY, St. Anne, Ill.

FOR SALE.—Supplies; hives nailed free in February; will accept fur rugs the same as cash. GEO. E. KRAMER, Valencia, Pa.

New crop alfalfa seed; 4 lbs. by mail, \$1.10; 50 to 100 lbs., 16 cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—100 Danz. hives (42 with bees in good condition), 300 Danz. supers, sections, foundation, and general supplies. Good range. E. W. SMITH, Troutdale, Oregon.

FOR SALE.—Sweet-clover seed, or Bokhara mellilotus. Best fertilizing, hay, grazing, and honey plant known. For particulars write to MRS. J. T. MARDIS & SONS, Falmouth, Ky.

Soy beans, \$3.00 a bushel; sample, 10 cents. Bargains in dahlia and cannas. Thornless raspberry, \$1.00 each. Circular free. JACOB MCQUEEN, Baltic, O.

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FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN Co., (Successor to J. M. Jenkins.) Penn, Miss.

A bottom-board and feeder combined. Illustrated in January Review. Three-months' trial, 15 cts. Join the crowd, and send in now. THE BEE-KEEPERS' REVIEW, 230 Woodland Ave., Detroit, Mich.

FOR SALE.—A lot of new one-story eight-frame hives, nailed and painted complete, except foundation, at \$1.60 each; bodies halved instead of dove-tailed—otherwise regular goods. H. J. AVERY, Katonah, N. Y.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla., the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama). Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

FOR SALE.—Forty Dovetailed comb-honey hives, 1½-story, eight-frame, with Excelsior cover, bottoms and inside fixtures complete. Some are new, some have been used two and three years; all well painted, and practically as good as new. Price \$1.25 each, in lots of 5, or \$45.00 for the lot, f. o. b. here.

ALBERT G. HANN, Pittstown, New Jersey.

Real Estate

FOR SALE.—A first-class apiary and mountain home. Ideal for health-seeker.

H. E. WILDER, Riverside, Cal.

FOR SALE.—A good four-room house and barn on four lots in the city of Stanfield, Ore.; also 150 colonies of bees in a good locality for comb honey.

Address T. J. BARRINGER, Stanfield, Ore.

FOR SALE.—Ten-acre fruit, bee, and poultry farm; 131 colonies of bees; basswood honey, cases of two 60-lb. cans, \$12.00; driving team; buggies, cutter, sleighs, wagon, and harness; game chickens; buffalo robe; bloodhound, and genuine Paganini violin.

ELIAS FOX, Union Center, Wis.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates.

F. H. LA BAUME,

Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

TO HOMESEEEKERS.—Are you looking for a town where you can have every advantage of a large city? where rent, taxes, and living are very low? where schools are the best, and a town only one hour's ride from the largest city in Ohio? If so, investigate the opportunities in Medina. Address

PRESIDENT OF BOARD OF TRADE, Medina, Ohio.

FOR SALE.—Cocoa estate, St. Lucia, West Indies; 50 acres land; 20 acres in full bearing; 20 acres young trees. Present average crop, with poor care, seven tons cured cocoa, value 12 cts. per lb. in New York; capable of trebling crop within few years; rich soil; cheap labor (one shilling per day); low freights; no land tax; healthy climate; honey-yield averages 70 lbs. extracted per hive—value 6 cts. Vendors (English) with 25 years' cocoa experience would direct purchaser first year if required. Further particulars from

GEO. S. HUDSON, St. Lucia, B. W. I.

Bees and Queens

WANTED.—To purchase 100 colonies of bees within 200 miles of Hamilton, Ontario.

BRANT BROTHERS, Smithville, Ontario.

If our bees winter as usual, we will sell 50 to 300 colonies, eight-frame hives, March to May. We are not selling out.

E. F. ATWATER,

Box 235, Meridian, Idaho.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.

JOS. WALLRATH, Antioch, Cal.

FOR SALE.—Early "Italian" (Profalcon) queens. February and March deliveries for untested, \$1.50 each; April, \$1.25. Tested queens 50 cts. additional; select tested, \$1.00 extra. JOHN C. FROHLIGER,

257, 259 Market St., San Francisco, Cal.

Berkeley, Cal.

FOR SALE.—Six colonies of well-bred Italian bees in Root eight-frame hives.

L. I. SHRADER, New Albany, Ind.

FOR SALE.—100 colonies of bees in ten-frame L. hives; extra supers; brood-frames, extractor, etc.; dandelion, clover, basswood, willow-herb, and an abundance of wild flowers; few bees in the county; no disease; hunting and fishing.

M. L. TAPLIN, Box 616, Aitkin, Minn.

GOLDENS that are golden, gentle, hardy, and hustlers. Golden-to-tip queens, mated, \$1.00; select mated, \$1.50; select tested, \$3.00 to \$5.00. All mated, \$1.50 queens replaced. Send for booklet. Nuclei and full colonies.

GEO. M. STEELE,

30 South 40th St., Philadelphia, Pa.

Help Wanted

WANTED.—Man for bee-work—shares or salary: four yards.

F. G. BASS, Front Royal, Va.

WANTED.—Bee-men. Give age and experience in first letter.

W. W. FAIRCCHILD, Calexico, Cal.

WANTED.—Scientific queen-breeder. Good pay to one who understands the business.

A. Y. CHRISMAN, Kearney Park, Fresno Co., Cal.

WANTED.—A reliable man of good habits, for the season of 1912, to work with bees and on farm; am working several yards. State age, experience, and wages expected.

N. L. STEVENS, Moravia, N. Y.

WANTED.—A practical apiarist to rent any number of colonies one can handle on shares at Truckee Meadows, Reno, Nevada; or will sell one-half interest at cost, and work jointly under my system for extracting honey. Full equipment for the business. Complete apparatus of my own invention, for shipping. Noted shipper of 137 carloads of bees, my past experience.

C. I. GRAHAM,

Oroville, Butte Co., Cal.

Position Wanted

WANTED.—By a poultryman a position as bee-keeper; have had four years' experience in taking care of bees.

E. A. SCHMALLE,

444 West Fifth St., Elmira, N. Y.

WANTED.—A steady young man wants work in an apiary and poultry-farm. He would accept small wages, as he wishes to gain experience.

Address PETERS, Okanagan Landing, B. C.

WANTED.—By a young man of good habits a position in an apiary; will go to any State or to Cuba; can furnish good reference. State wages by month or year.

EMIL ANDERSON, Box 216, Anita, Pa.

WANTED.—Commercial apple-orchard. Must be a good proposition. Three years' experience in Washington and Idaho; also large apiaries, twenty years' experience.

J. C. HINDMAN, Grove City, Pa.

WANTED.—Position in apiaries; am expert in comb-honey production; 22 years' experience in six States; age 36; single; will also go into partnership with a party having bees. I have \$4000 cash.

CHAS. GROVE, 3604 Emerald St., Philadelphia, Pa.

Miscellaneous

It's a friend in need—mends tires instantly. Agents wanted.

WM. JAMES, Lansing, Mich.

Is your thermometer right? Can you test it? The January Review tells you how. Three months for 15 cts.

THE BEE-KEEPERS' REVIEW,

230 Woodland Ave., Detroit, Mich.

Poultry

April-hatched Indian Runner ducks, fawn and white; \$2.00 each; \$3.50 a pair; \$5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

Golden-laced Wyandottes and Indian Runner ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50. DR. D. OSCAR MEAD, Pinckneyville, Ill.

Am booking orders for White Indian Runner duck eggs—true I. R. type, and white; no sports; handsome and hardy. Also eggs from both light fawn and penciled strains. State which you want. F. J. ARMSTRONG, Nevada, O.

Orders for eggs that will hatch, at 10 cts. each, for Indian Runner ducks, white and fawn; also for Buff Rock chickens; both standard stock, and from good laying strains. Write; want to tell you more about them, or place your order now.

J. RUDY ROEBUCK, Dalton, Ohio.

I have a flock of most beautiful Indian Runner ducks, correctly mated, which have proven beyond a doubt to be the twentieth-century egg-machines. I will book orders from now on, and ship when so ordered, 13 pure-white eggs for \$1.00. Satisfaction guaranteed or money refunded. This advertisement will be lived up to, to the letter.

ROBERT BIRD, Rt. 2, Pinckneyville, Ills.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

Baby chicks, 7 breeds, hatch 100,000. Catalog free. TAYLOR'S POULTRY YARDS, Lyons, N. Y.

FOR SALE.—Prairie State 300-egg incubator for \$10.00. D. H. COGGSHALL, Rt. 12, Groton, N. Y.

Barred Rock eggs—Bred-to-lay strain; \$1.00 per 15. Catalog free. J. W. DAIL, Cambridge, Md.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs—\$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100. C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkville, Ill.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers. C. M. MYERS, Winchester, Ind.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address THE VAN DRUST FARMS, Cedar Grove, Wis.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free. CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

DUMARESQ SICILIAN BUTTERCUPS.—Some fine young stock from my blue-ribbon winners at Appalachian exposition and other shows. Testimonial of pullets laying in 124 days. Send for circular. MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

CRYSTAL WHITE ORPINGTONS, Kellerstrass strain. First pen headed by cockerel that scored 92, Medina and Akron. Vigorous birds, pure in color and mating. Send egg orders now and hatch early; \$3.50 for setting of 15. Satisfaction, fertility, and safe shipment guaranteed.

M. D. KIMMELL, Medina, O.

Prize-winning S. C. R. I. Reds, thoroughbred White Orpington, Barred Plymouth Rocks, Indian Runner ducks, fawn and white; white egg strain; eggs; drakes and cockerels.

DAVID M. HAMMOND,
Woodside Poultry Yards, Rt. 5, Cortland, N. Y.

SICILIAN BUTTERCUPS—Mr. A. I. Root's favorites; larger than Leghorns, which they somewhat resemble, and more prolific layers. Get a good start with coming breed. My stock direct from original importation—none better anywhere. Now booking orders—delivery when desired. Eggs \$3.50 and \$5.00 per 15. Safe shipment, fertility, and satisfaction guaranteed.

SECRETARY BUTTERCUP ASSOCIATION, Medina, O.

BABY CHICKS.—We are in better shape than ever this year to supply your wants in baby chicks. Our stock is all hatched from strong vigorous birds, almost sure to grow and do well. We can supply chicks from S. C. White Leghorns, S. C. Buff and Black Orpingtons, Anconas, White Plymouth Rocks, R. C. R. I. Reds. Let us know what you want and we'll quote you prices from $\frac{1}{3}$ to $\frac{1}{2}$ less than others on the same grade of stock. Eggs from any of the above varieties from \$1.50 per 15 up. Feel free to write us.

AMBROSE & KNIGHT,
Hardware, Field Seeds, Poultry Supplies,
Urbana, Ohio.

Pigeons and Pet Stock

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty; 17 years' experience. Illustrated matter free. PROVIDENCE SQUAB CO., Providence, R. I.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business: June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices

The annual convention of the Western New York Bee-keepers' Association will be held at Convention Hall, Rochester, Feb. 27, 1912. Some of the leading bee-keepers of the State will be present. All are invited to be present and participate.

Rochester, N. Y. EARL F. CASE, Sec.

The convention of the South Dakota Bee-keepers' Association has been postponed from Jan. 18 and 19) to March 20 and 21, on account of cold weather. The program will be the same, and the meeting will be held in the same place as announced—Auditorium, Sioux Falls.

Canton, S. D.

L. A. SYVERUD, Sec.

Special Notices

By OUR BUSINESS MANAGER

We call attention again to the removal of our New York branch office to 139 Franklin St., Sapco Building, telephone Franklin 531. Visitors in New York are urged to call; and those who are in the habit of sending their orders to that branch will find us better equipped than ever before to serve them promptly. See full announcement on p. 10.

HOTBED SASH.

We have just printed a booklet of 25 pages, entitled "How to Make and Run a Hotbed," which we shall be pleased to mail on request. If interested in early vegetables it will be well worth your while to read it and put its instructions into practice. If in need of sash or glass we have a good stock on hand ready for prompt shipment.

ALSIKE-CLOVER SEED.

Owing to the dry season last summer, and a light crop, the price of all kinds of clover seed is ruling very high, and \$15.00 a bushel is about the ruling price of medium and mammoth, while white runs as high as \$23.00 for choice seed. We have a limited supply of alsike, which we offer, while it lasts, at 30 cts. per lb.; \$4.00 per peck; \$7.50 per half-bushel; \$14.50 per bushel, or \$28.00 for two bushels, bags included. We can ship from Stockport, Iowa, either medium or alsike at above prices.

SWEET-CLOVER SEED.

We have been disappointed in getting a quantity of hulled white-sweet-clover seed from the West, for which we contracted last August. As a consequence our supply is limited, and a fresh supply of imported seed costs more than it did a year ago. We are obliged, therefore, to mark up our prices on hulled white seed 2 cts. per lb. above those quoted in our last issue. The revised price is 25 cts. per lb.; 10 lbs., \$2.20; 25 lbs., \$5.25; 100 lbs., \$20.00.

POWER HONEY-EXTRACTORS.

Our power extractors of recent make have created such a favorable impression wherever seen that orders for them are very much on the increase. As will be seen by our catalog, this year we are offering a little rotary pump which is connected to the extractor, and operated from the same gear-bar, for only \$15.00 extra. This will elevate the honey, as fast as extracted, to a storage-tank on a floor above if necessary.

The new sixty-speed engine on trucks, of 1½ horse power, is a marvel of simplicity and wide range of application to many kinds of work. It sells for \$85.00, or a 3 h. p. of the same style for \$90.00. The old-style air-cooled engine, made by the same people, we can now sell for only \$50.00 for 1 h. p. without fan; \$55.00 with fan.

MAPLE SUGAR AND SYRUP.

Owing to the heavy demand last year for our Ohio rock-maple syrup and sugar we have decided to book orders in advance of the crop at the following prices:

Single one-gallon can or one case of six one-gallon cans, at \$1.25 per gallon.

Two to ten cases of six one-gallon cans to case, at \$1.15 per gallon.

Larger quantities, 75 to 100 gallons, at \$1.10 per gallon.

For a number of years we have not been able to get sufficient quantities of maple sugar to meet the demand. We hope this year to obtain a larger supply. We quote as follows:

1 to 25 lbs. best rock-maple sugar at 15 cts. per lb.

25 to 50 lbs. ditto at 14 cts.

50 to 250 lbs. ditto at 13 cts.

250 to 1000 lbs. ditto at 12 cts.

WANTED.—All Southern Idaho bee-keepers to know they can get all kinds of bee-keepers' supplies at home. Write for catalog. I have my own factory.

C. E. SHRIVER,
1623 Bannock St., Boise, Idaho.

PYROX fills the barrel with the apples that used to be on top. Write BOWKER INSECTICIDE Co., Boston, for book.

PUBLICATIONS ON

BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 13 **The Buckeye Bee-hive,** or the management of bees in double-walled hives. Of special interest to the amateur bee-keeper. A very complete booklet 84 pages. Illustrated throughout, 10 cts.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupo

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$ to cover the cost.

1	2	3	4	8	9	10	11	12	13
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Name

Street Address or R. F. D.

Town

G.B.C. 2-15-12 State

My Farewell Car

By R. E. Olds, Designer

Reo the Fifth—the car I now bring out—is regarded by me as close to finality. Embodied here are the final results of my 25 years of experience. I do not believe that a car materially better will ever be built. In any event, this car marks my limit. So I've called it My Farewell Car.

My 24th Model

This is the twenty-fourth model which I have created in the past 25 years.

They have run from one to six cylinders—from 6 to 60 horsepower; from the primitive cars of the early days to the most luxurious modern machines.

I have run the whole gamut of automobile experience. I have learned the right and the wrong from tens of thousands of users.

In this Farewell car I adopt the size which has come to be standard—the 30 to 35 horsepower, 4-cylinder car.

Where It Excels

The best I have learned

in 25 years is the folly of taking chances. So the chiefest point where this car excels is in excess of care and caution.

In every steel part I use the best alloy ever proved out for the purpose. And all my steel is analyzed, to prove its accord with the formula.

I test my gears with a crushing machine—not a hammer. Thus I know to exactness what each gear will stand.

I put the magneto to a radical test. The carburetor is doubly heated, for low-grade gasoline.

I use Nickel Steel axles of unusual size, with Timken roller bearings. I use Vanadium Steel connections.

So in every part. Each device and material is the best known for the purpose. The margin of safety is always extreme.

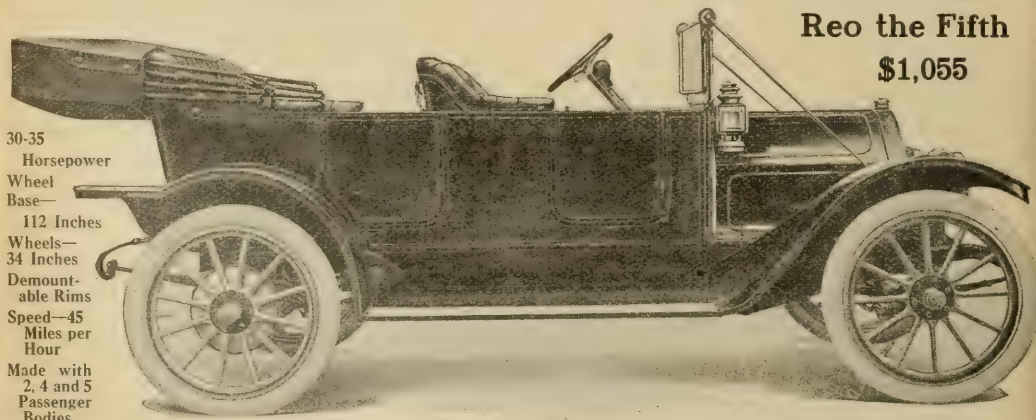
In Finish Too

I have also learned that people like stunning appearance. So my body finish consists of 17 coats. The upholstery is deep, and of hair-filled, genuine leather. The lamps are enameled, as per the latest vogue. Even the engine is nickel-trimmed.

The wheel base is long—the tonneau is roomy—the wheels are large—the car is over-tired. In every part of the car you'll find the best that is possible—and more than you expect.

Reo the Fifth

\$1,055



30-35
Horsepower
Wheel
Base—
112 Inches
Wheels—
34 Inches
Demount-
able Rims
Speed—45
Miles per
Hour
Made with
2, 4 and 5
Passenger
Bodies

Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas-tank, and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$25 EXTRA.

Initial Price, \$1,055

This car—my finest creation—has been priced for the present at \$1,055. This final and radical paring of cost will stand, I believe, as my greatest achievement.

It has required years of preparation. It has compelled the invention of much automatic machinery. It necessitates making every part in our factory, so no profits go to parts makers.

It requires enormous production, small overhead expense, small selling expense, small profit. It means a standardized car for years to come, with no changes in tools and machinery.

It requires, in addition, that we make only one chassis. By that we save nearly \$200 per car.

Thus Reo the Fifth gives you more for the money than any other car in ex-

istence. Any man can prove that for himself.

But this price is not fixed. It is the uttermost minimum. We shall keep it this low just as long as is possible. But if materials advance—even slightly—our price must also advance.

No price can be fixed for six months in advance without leaving big margin, and we haven't done that. So the present price is not guaranteed.

No Skimping

Men who know me won't think that in fixing this price I have skimmed on this Reo the Fifth. Others should consider what I have at stake—my 25 years of prestige.

If there is one device, one feature, one material better than I here employ, I don't know it. Better workmanship I regard as impossible.

More care and caution cannot be conceived.

I ran one of these cars for ten thousand miles—night and day, at full speed, on rough roads. And the vital parts hardly showed the least sign of wear.

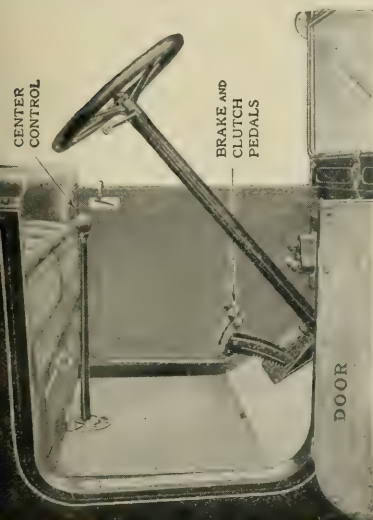
Catalog Ready

Our catalog tells all the materials, gives all specifications. With these facts before you, you can make accurate comparisons with any car you wish.

We ask you to do that. In buying a car for years to come, make sure of the utmost value. Here is the best car I can build after 25 years of experience. You ought to find it out.

The book also shows the various styles of bodies. With two-passenger Roadster body the price is \$1,000.

Write now for this catalog, then we'll tell you where to see the car. Address



R. M. Owen & Co. General Sales Agents for
Reo Motor Car Co. Lansing, Mich.
Canadian Factory, St. Catharines, Ont.

New Center Control No Levers—No Reaching

Note this new feature—the center, cane-handle control. This handle moves but three inches in each of four directions. That very slight motion does all of the gear-shifting.

Note the absence of levers. The driver's way is as clear, on either side, as the entrance to the tonneau.

Both brakes are operated by foot pedals. One pedal also operates the clutch. The driver sits as he should sit, on the left-hand side. Heretofore this was possible only with electrics.

Those are a few of the ways in which Reo the Fifth shows its up-to-date-ness.

Learn
the

Exact Truth About Poultry Profits

A few hens cannot make you a millionaire.
On the other hand, don't get the wrong
notion that "there is nothing in chickens"
—that poultry profits are only for experts.

If you want a few hens to supply your own breakfast eggs, it is easy; to sell eggs and broilers at a fair profit is easy, too; to build a big poultry or egg business, paying thousands of dollars profit per year, is harder, but quite possible; it has been done many times,



A Rancocas Unit at Work

and will be done many times more. But remember, it takes **BRAINS** and **EXPERIENCE**. You must supply the brains, and we will, if you wish, supply the experience of one of the three greatest poultrymen in the world. You can learn the truth—the exact truth—about poultry, if you will read this advertisement—and act.

J. M. Foster, the "Egg King," will show you how to begin—what is the best breed for eggs—how and what to feed—how to force hens to lay heavily—how to secure early molt and quick recovery—how to insure winter eggs when prices are high—how to get more pullets than cockerels, and many other facts—all money makers. All this gold mine of costly experience and knowledge will be found in

"The Million Egg Farm"

of which FARM JOURNAL has sold many thousand copies. It is by Joel M. Foster, of the Rancocas Poultry Farm. We call him the "Egg King," because he marketed last year the astounding total of 1,121,478 eggs. "In writing *The Million Egg Farm*," says Mr. Foster, "I had one thought continually in mind—TO HELP THE BEGINNER. I myself was a beginner only five years ago, so I know what beginners need to know—and I put it all in the book. It is for the man who has a dozen hens on a back lot even more than the man who numbers his birds by the thousands."

Let us show you what it has meant to Robert Liddle, a clerk of Scranton, Pa., to follow the direction in this booklet. In May, 1910, he bought 2,300 day old chicks. He spent just one week studying the methods now given in this book, absolutely his only preparation for the business. What has been the result? He raised 95 per cent. of his chicks. Of these, 1,350 proved to be pullets. On November 28, 1910, less than seven months later, he was getting upwards of 425 eggs daily, and selling them for 58 cents per dozen wholesale, nearly 5 cents apiece. His feed cost averages \$4.00 per day, leaving over \$17.00 a day profit, and this before all his birds had begun laying.

Every Statement a Proved Fact

Before accepting the manuscript from Mr. Foster, FARM JOURNAL made expert and exhaustive examination into the methods used at the farm, and sent Lybrand, Ross Bros. & Montgomery, Public Accountants, Land Title Bldg., Phila., to verify all claims as to production, sales and profits. They found that for the year ending July 31, 1910, the profits were \$19,484.83. Write them and prove it.

We believe this masterly book should be read by every hen owner, and we have therefore arranged to supply it in the following extraordinary offer:

One Copy "Million Egg Farm," postpaid }
FARM JOURNAL, four full years } **Only \$1.00**

FARM JOURNAL,
117 N. Clifton St., Philadelphia, Pa.

Gentlemen: Enclosed is my dollar, for which send me your book, "THE MILLION EGG FARM"—and put my name and address on your paid-in-advance subscription list to get FARM JOURNAL, for four years.

Name _____

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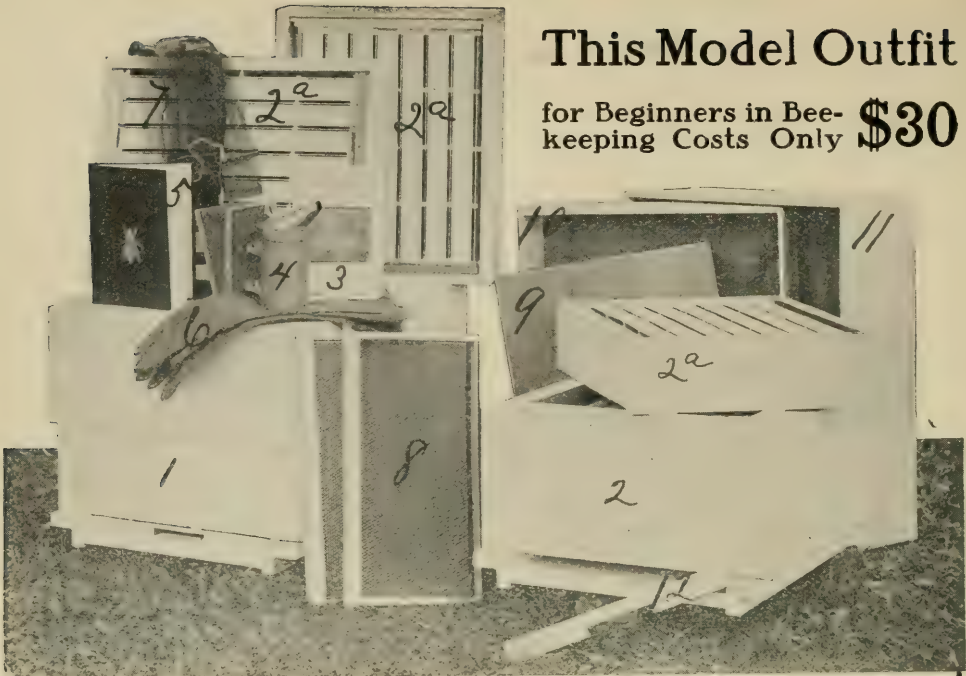
Gleanings in Bee Culture



VOL. XL. MARCH 1, 1912, NO. 5.

This Model Outfit

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Here is an illustration of a complete outfit for the man or woman who wants to make a start in bee-keeping in a small way. With every thing first-class, and ready for immediate use, and with bees of purest Italian strain (which are included), this outfit will afford a fine opportunity to study the work of these interesting little pets, and prepare for broader developments.

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G.B.C. 12

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If you don't find a dealer in your locality, don't think there is none. Drop us a postal for the name—for there are many others—or better still give us a list of your wants for quotation at our nearest dealer.

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A concise little treatise which gives clear cut, a complete outline of this interesting occupation—beekeeping. It's cheerfully sent postpaid together with our RED CATALOG from our office or from any distributor.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, Feb. 20. **BLAKE-LEE CO.**

COLUMBUS.—Good honey is extremely scarce. No. 1 and fancy are wanted. Fancy, in jars, sells at 18; No. 1 ditto, 17; No. 2, 14. Extracted is not wanted. Columbus, Feb. 23. **THE EVANS & TURNER CO.**

SCHENECTADY.—We have no desirable comb honey to offer. There is some demand for white uncandied stock. Extracted is moving slowly, and stock is accumulating, with a decline of ½ ct. per lb. in prices from last quotations. Schenectady, Feb. 19. **CHAS. MACCULLOCH.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb. Indianapolis, Feb. 17. **WALTER S. POWDER.**

DENVER.—The supply of strictly white comb honey is about exhausted, and prices are, as a consequence, higher than they otherwise would be, as the demand is light. We quote No. 1 white comb honey, per case of 24 sections, \$3.60; No. 1 light amber, \$3.35; No. 2, \$3.15. White extracted brings 9 cts.; light amber, 8; strained, 6½ to 7½. For clean yellow beeswax we pay 26 cts. in cash or 28 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N.
Denver, Feb. 19. **F. Rauchfuss, Manager.**

NEW YORK.—We have practically nothing new to report as to the condition of our market. Very little comb honey is arriving, and what little lots do come in find ready sale at prices ranging all the way from 14 to 17 for the white, and from 11 to 13 for dark and amber, according to quality and style of package. As to extracted honey, the market is decidedly quiet. Ever since the first of December the demand has been gradually decreasing; and with large stocks on hand prices have shown a downward tendency, and they are likely to decline still further. We quote nominally, California white sage at 9 cts.; Western white alfalfa, 8; Western light-amber alfalfa, 7 to 7½. In quantity lots even these prices would have to be shaded to effect sale. Beeswax is steady at 30 to 31 cts. per lb.

New York, Feb. 19. **HILDRETH & SEGELKEN.**

Continued on page 5.

Mr. New Beeman.—“Well, well, nailing up your beehives already? Aren't you rather early?”

Mr. Successful Beeman.—“Now, then, that is just where so many make their mistake: they wait until the last moment and then rush and buy anything they can get. You have often asked me the secret of my successful beekeeping. Well, listen! I order early, buy the **best beehives and supplies** on the market, nail them up, and then I am ready for the bees. All my supplies come from

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One per cent discount for March orders.

C. H. W. Weber & Co.

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Cincinnati, Ohio

Gleanings in Bee Culture

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Ass't Editor

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If you can figure your wants now to buy early and get the benefit of lowest prices, don't fail to consult us.

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Beeswax taken in exchange for supplies or cash.

We are 75 miles west of St. Louis. Shipping facilities good.

JOHN NEBEL & SON SUPPLY CO.,
High Hill, Montg. Co., Mo.

Honey Markets, continued from page 2.

ZANESVILLE.—The honey market seems unusually quiet, though the local demand is never very brisk at this season. Though the crop was generally light the past season, the supply seems to keep pace with the demand. Still, the market is firm, about the same prices prevailing as last quoted—20 cents for best grades of comb in one or two case lots, and 11 to 12¢ for white extracted in 60-lb. cans, according to quantity. For wax of good quality, 29 cents in cash or 31 in exchange for bee supplies is offered producers.

Zanesville, O., Feb. 17.

E. W. PEIRCE.

LIVERPOOL.—There is a firm honey market here, and good business is passing. Chilian honey is retailed at last prices. Haitien has sold at \$6.00 to \$8.40 according to quality, and stocks of other descriptions have sold at different quotations as follows: Haitien, \$5.75 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. Good business is done in Chilian beeswax at \$34.48 to \$38.72 per cwt. Prices show 60 cts. advance for medium to low quality, of which there is a fair stock. Quotations for other descriptions are as follows: African, \$32.16 to \$34.48; American, \$36.72; West Indian, \$18.12 to \$36.28.

Liverpool, Feb. 5.

TAYLOR & CO.

CINCINNATI.—We see nothing exciting in the demand for honey. There seems to be plenty of it, of all kinds. We are selling fancy comb honey in 24-section glass-front cases at \$3.75 to \$4.00 a case. It is an imposition on the consumer to sell lower grades, and hereafter we shall absolutely refuse to buy it, for on each transaction we not only lose money but spoil the trade in good honey. For strictly fancy water-white table honey we are getting from 9 to 10 cts. per lb. in crates of two 60-lb. cans each; for amber honey in barrels, 7 to 8. For strictly choice bright yellow beeswax we are paying from 30 to 31 cts. delivered here, and for lower grades from 1 to 2 cts. per lb. less.

Cincinnati, Feb. 12. THE FRED W. MUTH CO.

(Organized 1870)

National Beekeepers' Association

Objects

The objects of this Association shall be to aid its members in the business of beekeeping; to help in the sale of their honey and beeswax; and to promote the interests of beekeepers in any other direction decided upon by the Board of Directors.

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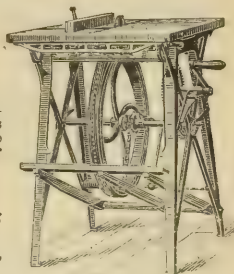
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545 Ruby St.,
ROCKFORD, ILLINOIS.



KANSAS CITY.—We are having a better demand for comb honey, but no change in prices. Receipts are light. We quote No. 1 white comb, 24-section cases, \$3.25; No. 2 ditto, \$3.00; No. 1 amber, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 8¢ to 9¢; amber ditto, 8 to 8½¢; dark ditto, 5¢. Beeswax brings 25 to 28 cts. per lb.

C. C. CLEMONS BEE SUPPLY CO.

Kansas City, Feb. 20.

CINCINNATI.—The market on comb honey has fallen off somewhat, the only demand being for fancy white, which sells in a retail way at \$4.00; to jobbers at \$3.60 to \$3.75, according to quality. Extra white extracted in 60-lb. cans sold at 10 cts.; light-amber ditto, 8½¢; amber in barrels, 7 to 7½¢. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Feb. 19.

CHICAGO.—There was a fair movement in honey during the first part of February; but still the stocks are sufficient, if not more than enough to carry through the spring trade in comb, for the best grades of which we are still getting 17 to 18 cts. per lb. For any thing short of the fancy grades we get from 1 to 5 cts. per lb. less. Owing to the uncertainty of the crop in California because of the lack of moisture, the extracted is held steadily, although the trading is light. Prices range on white from 8 to 9¢; amber, 7 to 8. Beeswax brings 30 to 32.

Chicago, Feb. 17.

R. A. BURNETT & CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

Issued Semi-monthly

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All Exhibition and Sample-room Hives, Extractors, and other Bee Fixtures are being offered at reduced prices in order to make room for new goods. Better write to-day and save from ten to fifteen per cent. **ONE PER CENT SPECIAL DISCOUNT** is allowed on all orders for new stock purchased from us this month for immediate or future shipment, so send list of your requirements if you want to purchase Bee Supplies, the best that are made, at absolutely rock-bottom prices.

Do not forget our Bee-Book, 'How to Make Money in Bees,' which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.



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Successors to
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WE ARE WESTERN AGENTS FOR
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PRACTICE

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Patent Practice in Patent
Office and Courts.

Patent Counsel of
The A. I. Root Co

March Winds

Will soon give place to the proverbial April showers. In other words, spring is at hand.

Are you ready for it, Mr. Beeman? As in most localities the last two seasons were not the most favorable, you probably did not stock up heavily on supplies, and therefore find yourself short of hives, frames, sections, foundation, or other beekeeping accessories. Do not make the mistake of waiting till the last minute before sizing up your needs; for when once the bees get down to business, time is valuable and delays are costly. The March discount of 1 per cent is also worth considering, and on a large order is quite an item of saving.

Of course you will want the best goods the time-tested ROOT line; and, which is scarcely less important, prompt attention, careful packing, and quick delivery—in short, PEIRCE SERVICE.

If you are numbered with our hundreds of pleased customers, we await your annual call. If not, let us demonstrate our ability to please YOU. A large illustrated catalog and price list free if you ask for it.

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Nice big strong vigorous chicks is what we ship. Safe arrival guaranteed. Price 8 to 15 cts. each; 100,000 for sale this season. Catalog free.

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Superior Carniolan Queens

Write for our paper "Superiority of The Carniolan Bee" giving a brief description of these bees, their points of superiority, best methods of management, prices of our queens and other information. *It's free.*

ALBERT C. HANN, Scientific Queen Breeder,
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Why Not REAR Your Own QUEENS?

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal for 1912—Both for Only **\$1.00**

Every Bee-keeper Should Have Both Book and Bee-Paper.

DOO LittLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now before the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1912, for only \$1.00, is certainly a *big bargain* for you. Send the \$1.00 now, and we will begin your subscription with January 1, 1912, and mail you the book. Sample copy of the Bee Journal free. Address



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New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

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Send us list of goods needed, and let us quote you our special prices on quantity orders.

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Our Stock of Root's Bee Supplies is the most complete of any.

Special prices on Poultry Feeds, Shells, Grit, Charcoal, etc.

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Send for our 1912 Catalog.

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Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

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 Send your name for our 1912 catalog.
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W. H. Laws

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Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

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FARMING, GARDENING, and NUT-GROWING in the South THE SOUTHERN FRUIT GROWER tells all about it. Price 50 cents per year. Sample copy free. Address

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Honey-knife, .70; mail, .80.

Manufactured only by

Root's Beekeepers' Supplies

You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary. Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested. You may live thousands of miles from here, and yet we can serve you almost as promptly as though you were near at hand; for, besides our branch offices, we have hundreds of large distributing houses located at convenient points all over the country, where large and complete stocks are constantly at the service of beekeepers. We will tell you from what point you can buy to the best advantage when you send for our catalog. Write to-day.

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Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

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Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

The A I. Root Company, Medina, Ohio

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Comb Foundation

is no better than the material that it is made from. Material is good only in so far as it will give service and satisfaction. Comb foundation made of the best beeswax will give neither service nor satisfaction if the wax has not been properly treated and sheeted before being run through the mills. There was a time, and not so long ago, when the clarifying of wax wasn't so general; and, in fact, it wasn't necessary to do so; for in those days the requirements weren't so exacting. But that time has passed. Full sheets of foundation are now being used entirely by producers of both comb and extracted honey.

The QUEEN MFG. CO. have gone one step further in preparing crude wax before it is finally passed through the rolls. QUEEN Foundation is made by a man who has spent the greater part of his life among the honey-bees, both in the South and North.

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Our seeds are selected and grown with special reference to the South. We not only have the right seeds but we know what to recommend for the best results here. Our prices are right. Our catalog is free, and contains valuable information.

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Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

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- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
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- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
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Please send me the items checked. I enclose \$ to cover the cost.

1	2	3	4	8	9	10	11	12	13
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We never knew until a few days ago that there had really been produced a dependable fall bearing strawberry; but from the interesting printed matter sent us by an advertiser, it appears that we may now enjoy this delicious fruit almost throughout the summer and fall season, and there ought to be a good market also for those who are prepared to produce the berries commercially.



Several of the well-known seedhouses are offering new flower and garden varieties as well as improved and selected seeds and plants of the staples. It is usually safe to buy the well-advertised seeds, for the publicity given through the advertising and the printed matter sent out forces the producer to supply nothing but the best, even on his smallest orders; for by this means his reputation as a reliable dealer is established.



To the owners of homes we would urge the advisability of a liberal setting of fruit trees and fruit-yielding plants and bushes. There is a great deal of satisfaction in not having to depend upon the market for fresh fruits for your table; and an abundance of these and a good garden, no matter how small, will help materially to reduce the high cost of living.



Bees and fruit are so closely allied, because of the immense value of bees to fruit-blossoms, that nearly all fruit-growers now keep a few colonies of bees, and conversely all beekeepers could profitably raise some fruit, at least enough of each variety for their own table. Fruit bloom in the early spring does much to stimulate brood rearing so that the bees build up rapidly without artificial feeding for the larger harvest later. The fruit produced on trees where beehives are close by is always better and more abundant than where there are no bees; indeed, bees are an absolute necessity to insure the proper pollination of certain blossoms, and without their agency there is often no fruit. It doesn't cost much more in the first place to get the choicest and best varieties, and the results in a few years will more than justify the small additional expense for a right beginning. Horticulture advertisers are glad to send full information as to planting and care of young trees and bushes, the soil to which they are adapted, and the results that may reasonably be expected from their stock.

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If you are a beginner, or if you have been disappointed in getting your supplies, it will be to your interest to give this house a trial. Getting beginners started right is one of my hobbies, and it is one of my pleasures to answer my letters promptly. If you require only a catalog, let me show you how quickly I can have it in your hands.

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Decker, Ind.

Yours truly,

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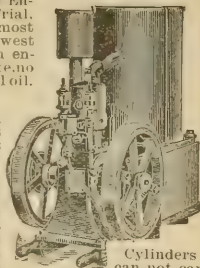
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hibit a sample 1912 Model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. Write at once for full particulars and special offer.

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LOW FACTORY PRICES We furnish the highest grade bicycles it is possible to make at one small profit above actual factory cost. You save \$10 to \$25 middlemen's profits by buying direct of us and have the manufacturer's guarantee behind your bicycle. **DO NOT BUY** a bicycle or a pair of tires from anyone at any price until you receive our catalogues and learn our unheard of factory prices and remarkable special offer.

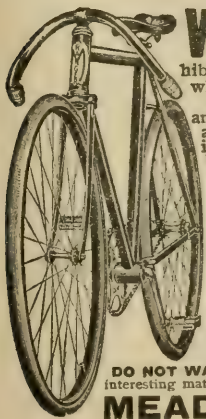
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Does the toughest job of grinding easily in a few minutes—your tools will be always sharp, making work go faster and easier. You can prove by actual use of this machine for 30 days' Free Trial. If you are not satisfied that it saves money, time, and tools, send it back at my expense. Built all of steel and iron—no chains—shaft drive like automobile—dust-proof ball bearings—gravity lubrication—5 years guarantee—runs 4000 revolutions by foot power—easy as sewing machine—absolutely revolutionizes tool sharpening.

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Farm outfit, and Mechanic's outfit each include 14 attachments and accessories providing for every grinding or sharpening need for farmers, carpenters, mechanics, shops, etc. Tool rests and attachments enable 14-year-old boy to do difficult sharpening such as twist drills, gumming saws, grinding discs, sickles, etc.

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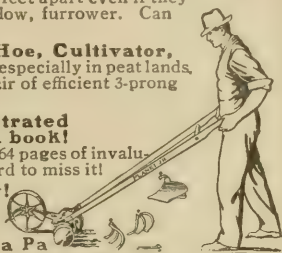
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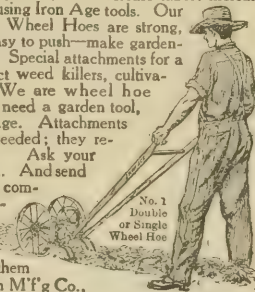
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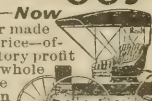


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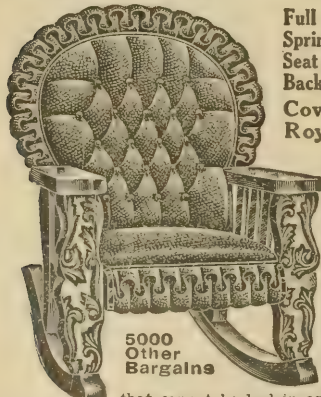
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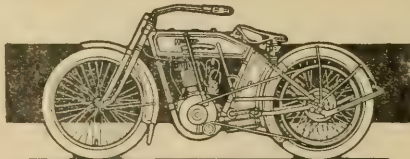
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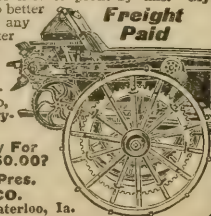
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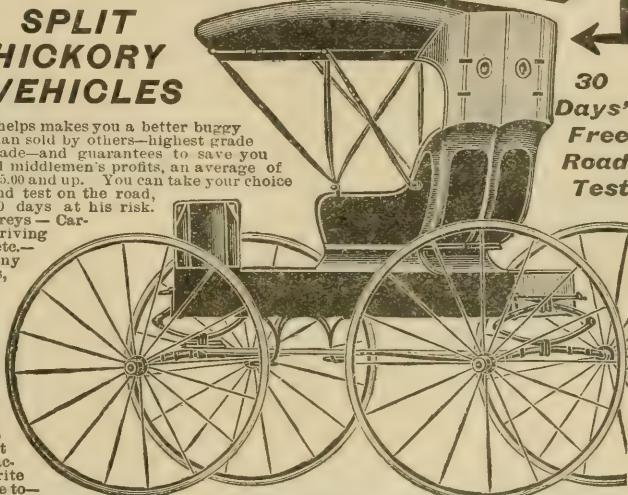
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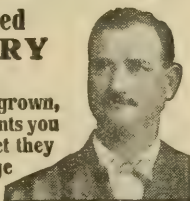
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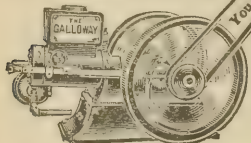
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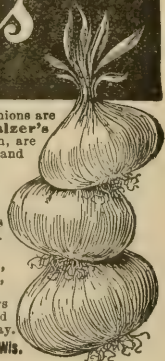
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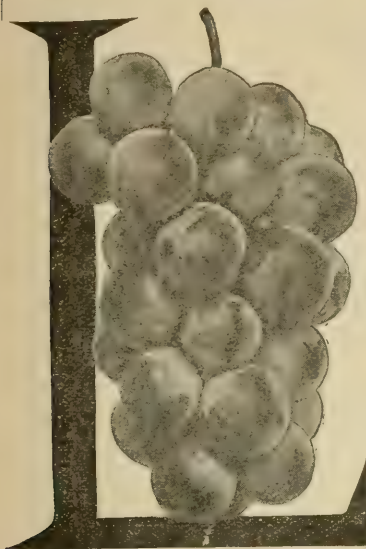
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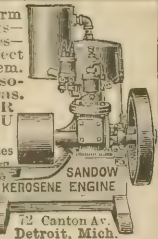
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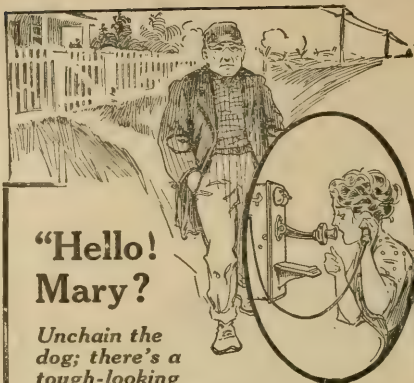
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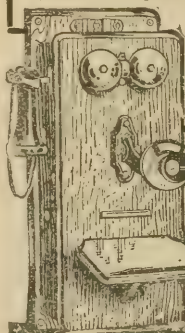
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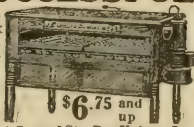
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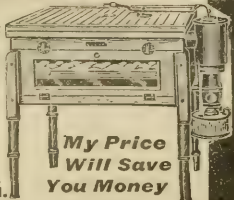
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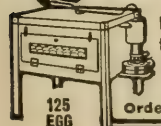
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Postage.] [Price without postage. fore the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

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Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants..... 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft... 15**

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft..... 15**

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

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The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05**5 | Home Pork-making; 125 pages, illustrated..... 40**

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3 | Winter Care of Horses and Cattle..... 25

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Write for beautiful booklet and excursion rates.
F. H. LA BAUME,
Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

FOR SALE.—Cocoa estate, St. Lucia, West Indies;
50 acres land; 20 acres in full bearing; 20 acres young
trees. Present average crop, with poor care, seven
tons cured cocoa, value 12 cts. per lb. in New York;
capable of trebling crop within few years; rich soil;
cheap labor (one shilling per day); low freights; no
land tax; healthy climate; honey-yield averages 70
lbs. extracted per hive—value 6 cts. Vendors (Eng-
lish) with 25 years' cocoa experience would direct
purchaser first year if required. Further particu-
lars from GEO. S. HUDSON, St. Lucia, B. W. I.

Position Wanted

WANTED.—By a poultryman a position as bee-
keeper; have had four years' experience in taking
care of bees.
E. A. SCHMALE,
444 West Fifth St., Elmira, N. Y.

WANTED.—Commercial apple-orchard. Must be
a good proposition. Three years' experience in
Washington and Idaho; also large apiaries, twenty
years' experience. J. C. HINDMAN, Grove City, Pa.

Help Wanted

WANTED.—An experienced beekeeper to take
charge of an apiary of 150 colonies to be run for
comb honey. Address, stating wages wanted,
E. A. BALDWIN,
No. 626 North Delaware St., Independence, Mo.

WANTED.—Aplarist who has had experience, and
knows how to raise good queens cheaply—who can
do any work with bees alone, yet follow instruc-
tions when given. Give reference. State wages
wanted first letter. H. C. AHLERS, West Bend, Wis.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00.
J. F. MICHAEL, Winchester, Ind.

Fawn and white Indian Runner duck eggs, \$1.00
per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each.
Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Golden-laced Wyandottes and Indian Runner
ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50.
DR. D. OSCAR MEAD, Pinckneyville, Ill.

Am booking orders for White Indian Runner
duck eggs—true I. R. type, and white; no sports;
handsome and hardy. Also eggs from both light
fawn and penciled strains. State which you want.
F. J. ARMSTRONG, Nevada, O.

Orders for eggs that will hatch, at 10 cts. each, for
Indian Runner ducks, white and fawn; also for
Buff Rock chickens; both standard stock, and from
good laying strains. Write; want to tell you more
about them, or place your order now.
J. RUDY ROEBUCK, Dalton, Ohio.

I have a flock of most beautiful Indian Runner
ducks, correctly mated, which have proven be-
yond a doubt to be the twentieth-century egg-ma-
chines. I will book orders from now on, and ship
when so ordered, 13 pure-white eggs for \$1.00. Sat-
isfaction guaranteed or money refunded. This ad-
vertisement will be lived up to, to the letter.
ROBERT BIRD, Rt. 2, Pinckneyville, Ills.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tomkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

Poultry

For utility and beauty. Buttercups unlike others. Eggs in season. H. W. MEEKER, Earl, Toledo, O.

Barred Rock eggs—Bred-to-lay strain: \$1.00 per 15. Catalog free. J. W. DAIL, Cambridge, Md.

FOR SALE.—Day-old chicks, 15 to 25 cents. Let us hatch your eggs for you.

WESLEY FOSTER, Boulder, Colo.

Buff and White Orpingtons. Prize-winning stock. Free mating-list. EDWIN JUDKINS, No. Holston, Va.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs—\$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100. C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers: \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkville, Ill.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers.

C. M. MYERS, Winchester, Ind.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address THE VAN DRUST FARMS, Cedar Grove, Wis.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free. GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Baby chicks, 9 breeds. Prices from 9 cents up; 100,000 chicks hatched per year. Catalog free. Over 6000 laying hens. TAYLOR'S POULTRY YARDS, (Sales Dept.) Lyons, N. Y.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

DUMARESQ SICILIAN BUTTERCUPS.—Some fine young stock from my blue-ribbon winners at Appalachian exposition and other shows. Testimonial of pullets laying in 124 days. Send for circular.

MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

Eggs from Houdans, Buff Rocks, Indian Games, Silver Wyandottes, Buff Leghorns, Rose C. B. Leghorns. Eggs \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Bronze turkey eggs, \$2.00 per 9; \$4.00 per 22.

DALE HART, Box 19, Broadwell, Ohio.

Prize-winning S. C. R. I. Reds, thoroughbred White Orpington, Barred Plymouth Rocks, Indian Runner ducks, fawn and white; white egg strain; eggs; drakes and cockerels.

DAVID M. HAMMOND,

Woodside Poultry Yards, Rt. 5, Cortland, N. Y.

Pigeons and Pet Stock

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty; 17 years' experience. Illustrated matter free. PROVIDENCE SQUAB CO., Providence, R. I.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912: beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices.

The annual convention of the Northern Michigan Beekeepers' Association will be held at Traverse City, Mich., March 13 and 14, 1912. Headquarters and meeting-place at Hotel Whiting. Special rates to those attending. Full program and list of prizes will be furnished by applying to the secretary, Ira D. Bartlett, East Jordan, Mich.

Lexington Hotel

500 Rooms

European Plan

Michigan Boulevard & 22nd St.

Chicago, Ill.



The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.

Special Notices

By OUR BUSINESS MANAGER

We have about two tons of choice Michigan and New York State amber extracted honey in five-gallon cans. The largest part of the honey was gathered from clover, but we presume many of the producers were busy with other work so did not get it extracted until after the fall flows came on, so there is enough dark honey mixed with this to grade it amber. We offer it put up in the original packages of two five-gallon cans to the case, at 8¢ cents per lb., delivered in good condition on board the cars at Medina. We seldom have a lot of honey as good as the above at such a low price. In ordering mention lot No. 107.

MAPLE SUGAR AND SYRUP.

Owing to the heavy demand last year for our Ohio rock-maple syrup and sugar we have decided to book orders in advance of the crop at the following prices:

Single one-gallon can or one case of six one-gallon cans, at \$1.25 per gallon.

Two to ten cases of six one-gallon cans to case, at \$1.15 per gallon.

Larger quantities, 75 to 100 gallons, at \$1.10 per gallon.

For a number of years we have not been able to get sufficient quantities of maple sugar to meet the demand. We hope this year to obtain a larger supply. We quote as follows:

1 to 25 lbs. best rock-maple sugar at 15 cts. per lb.

26 to 50 lbs. ditto at 14 cts.

50 to 250 lbs. ditto at 13 cts.

250 to 1000 lbs. ditto at 12 cts.

Our inspection of sugar and syrup as they come in from the producers will be more rigid than ever, as our requirements are based upon U. S. standard regarding the color, flavor, and purity of both sugar and syrup. Let us book your order now, as the first run is considered by all to be the best.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2½x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price \$14.00 each.

No. 0155, 2x10 round cell, medium-brood mill in old-style frame; fair condition. Price \$12.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price \$10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price \$12.00.

No. 0159, 2 x 10 round-cell medium-brood mill in good condition. Price \$15.00.

No. 0160, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0164, 2½ x 6 hexagonal thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0166, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0168, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0169, 2½ x 6 hexagonal extra-thin-super mill in extra good condition. Price \$15.00.

No. 0147, 2½ x 6 thin-super mill in extra good condition. Price \$15.00.

No. 0163, 2½ x 10 light-brood mill in good condition. Price \$17.00.

No. 0170, 2½ x 6 thin-super mill in very good condition. Price \$15.00.

No. 0172, 2½ x 6 thin-super mill in fair condition. Price \$11.00.

No. 0173, 2½ x 6 thin-super mill—defect near end of roll; extra good condition for four-inch foundation. Price \$12.00.

No. 0175, 2½ x 10 light-brood mill in good condition. Price \$16.00.

No. 0176, 2½ x 6 extra thin-super mill in fair condition. Price \$12.00.

Special Notices

By A. I. Root

EXPOSING FRAUDS, HUMBUGS, SWINDLES, INJUSTICE, AND EXTORTION.

So far as I can discover, no other periodical has ever done so much to protect the innocent hard-working people from the designs of rascals as has the old and well-known *Rural New-Yorker*, and this year to every subscriber they send a most valuable little book giving a history of the fakes that have been more or less successfully worked during years past. Our readers are well aware that GLEANINGS has done something in this line, and it has many times gladdened my heart to have the *Rural* back up and follow up on the trail we have started. Not only this, but the *Rural*, by threats of exposure, has, hundreds of times, succeeded in making not only individuals but even railroad and express companies hunt up the goods or pay for them where the efforts of the sufferer standing alone by himself would amount to nothing. Send a dollar for the *Rural* a year, and get posted in regard to the tricks that have been worked, and it may save you not only ten dollars but possibly a hundred in years to come. Not only that, you will be backing up truth, honesty, and justice, and encouraging those who, I fear, have not had the endorsement they deserve.

MR. BEE-KEEPER!

**Tear This Out and . . .
Hand it to Your Neighbor**

BEES AND SPRAY

Do not forget that the honey-bees are the fruit-grower's friends. The bees are ever busy fertilizing the blossoms of your fruit, plants, vines, and trees. If you spray your trees when they are in blossom you will destroy many of these friendly bees. Orchards should not be sprayed when in full blossom for other reasons. Wait until the blossom falls, but spray immediately after the blossom fades and falls. Then the fruit points upward with the calyx end uppermost, so that the poisonous spray gets in the calyx. Later the young fruit bends over so that the poison can not get into the calyx so easily. There is the right time to spray, and there is the right time to do almost anything.

—CHAS. A. GREEN, Proprietor of *Green's Nurseries*, Rochester, New York, and Publisher *Green's Fruit-Grower*.

Send for Free Book

"The Bee-keeper and Fruit-grower; Why and How Their Interests are Mutual," and ask for sample copy of "GLEANINGS IN BEE CULTURE."

**THE A. I. ROOT COMPANY
MEDINA, OHIO**

Southwestern Beekeepers!

At no other point in this part of the bee-keeping world can you get the combination of prompt and efficient service and excellence in **QUALITY** of goods that we can give you from

San Antonio.

The freight and express facilities of our city are almost unlimited. Shipments may leave at once over the fastest routes, and prompt delivery is assured. Our Mr. Udo Toepperwein is, perhaps, the best authority on bee-keeping subjects in this part of the country. Not many years ago he was a practical beekeeper on a large farm, and his early experience in this line enables him to understand the needs of beekeepers better than the ordinary supply dealer. He knows supplies, both from the standpoint of a user and a dealer, and you may depend upon his judgment to give you just what you need.

Our stocks are now complete for early orders; and with the prospect there is for a good season, delays are dangerous. All our goods are new and fresh, of Root manufacture, which is a guarantee of the quality. We sell in original factory packages at factory prices, and offer the manufacturer's discount of one per cent for March cash orders.

Weed Process Comb Foundation.

Our trade in this product has increased to such an extent that we have been obliged to install our own plant to make this. We can use all your wax at current prices, and can furnish you foundation which we are sure will please you, both in quality and price.

Honey-cans.

We have our usual large stock, and can fill orders the day they are received. Try us this season and be satisfied.

Our catalog will be sent on request, also delivered, prices quoted on any list submitted. You can save money by ordering from us. We have paid the freight to San Antonio, and our stock is at your service. Whether your order is large or small we shall be glad to handle it. Give us a trial and we will do the rest.

Queens.

We are prepared to supply queens from one of the best breeders in Texas. We especially solicit orders in quantity lots on which we will give wholesale prices.

No-drip Shipping Cases.

A big stock of these on hand at low prices. Write for particulars. It will pay you to get our prices.

Toepperwein & Mayfield,

Corner Nolan and Cherry Sts.

San Antonio, Texas.

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—TO—

America's Market Gardens

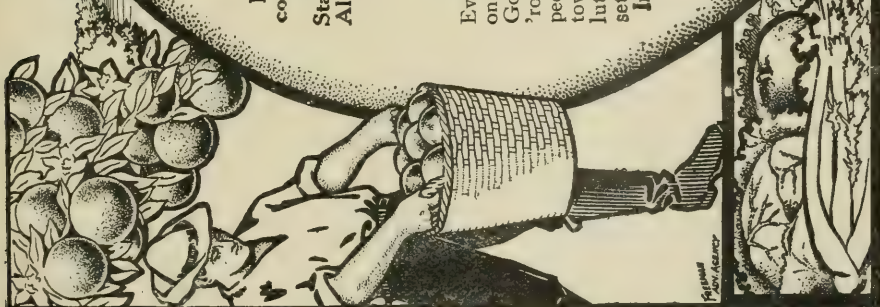
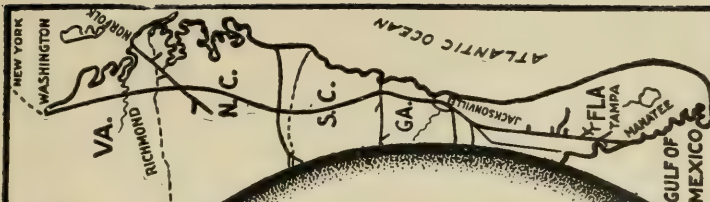
Be healthy, happy and independent, under clear skies in a progressive country, raising GRAPE FRUIT, ORANGES, ETC. Fruits and vegetables are grown to perfection in the Six Southern States (Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama,) traversed by the Seaboard Air Line Railway,

FROM THE PEANUT FIELDS OF VIRGINIA TO THE ORANGE GROVES OF FLORIDA

Fertile land is now cheap—\$10.00 per acre and up, but will soon advance. Every inducement is offered to the man of limited means. Farms can be bought on easy terms. Low freight rates—quick transportation to the big markets. Good roads, schools and churches. Plenty of water—ideal climate the year 'round, no extreme heat or cold—high class labor. We want more good people, we have a big country full of natural advantages, close to large towns—not in a wilderness. An investment in Real Estate here is absolutely safe. Ten acres will make you independent. Hundreds of satisfied settlers are becoming wealthy, and enjoying life. You can do the same. **In the land of Manatee on the West Coast of FLORIDA you can raise two to three crops a year—net \$500 to \$1000 an acre.**

Build a Home for your Family NOW. Give them the many advantages which were denied you. For handsome booklet and literature, write at once to:

**J. A. PRIDE, Gen. Ind. Agt.,
Seaboard Air Line Railway,
Suite 611, NORFOLK, VA.**



Peach Trees.

free to everybody.

800,000 Peaches, 5 to 7 feet, 10c; 4 to 5 ft., 8c; 3 to 4 feet, 6c; 2 to 3 ft., 4c. 200,000 Apples, 50,000 Pears, 50,000 Plums, 100,000 Cherry, 300,000 Carolina Poplar, and millions of Grape and Small Fruits. Secure varieties now, pay in Spring. Buy from the man who has the goods and save disappointment. Catalog
Shoen's Wholesale Nurseries, Danville, N. Y.

"The Corning Egg Farm Book By Corning Himself."

Not a Dream of Some Would-be Successful Poultryman; No Theoretical Possibilities; But Actual Accomplished Facts.

The Straight-Forward Story of the Building up, in Five and a Half Years, of the Greatest Egg Farm in the World, from a start with only 30 Hens.

The Corning Method developed the Strain of Single Comb White Leghorns *which cannot be surpassed.*

The Corning Egg Farm Book tells in detail everything about this Farm, from the purchase of the acreage, at Bound Brook, N. J., in 1906, right up to date.

FEEDING FOR EGGS

The marvelous discoveries and far-reaching developments in feeding for eggs, which have been made on the Corning Egg Farm during the last two years, can be found only in The Corning Egg Farm Book, because no one has gone into feeding for eggs so thoroughly and so successfully as Corning.

It matters not how successful you may be, the possession of the knowledge you will obtain by studying The Corning Egg Farm Book will enable you to reap a greater profit, year after year, than ever before.



The Corning Method brings success to the man who keeps a few hens, in the back yard, just as surely as to the man who keeps hens by the hundreds or thousands.

The Corning Egg Farm Has Now **Surpassed \$6.41 Per Hen Per Year**

and The Corning Egg Farm Book by Corning Himself tells how you can do the same.

How to build the Corning Houses, detailed drawings, lists of required materials, with full instructions, are in the Book.

Remember, Corning designed and built all these houses. No builder, architect, or contractor, could give you such plans, as only Corning knows.

The chapter covering the handling of birds on Colony Range will help many a man to put more pullets into his laying house than he has ever done before.

Mortality in raising chicks can be materially lessened by following the instructions laid down in The Corning Egg Farm Book.

This book is a real book, not a cheap paper pamphlet. It is bound in rich blue cloth, stamped in gold, with the Corning Strain Utility Cockerel in colors. 216 pages of clear type on fine paper. A Corning Cockerel, painted by one of New York's foremost artists, in life colors, is the Frontispiece. The pictures, 35 in number, were taken by a photographer of reputation. They are half-tones, full page and larger. 39 pen-and-ink drawings cover plans of the buildings, etc.

No one else can offer you the equivalent of The Corning Egg Farm Book at any price, for the pertinent reason that the knowledge given in plain language, understandable and usable by any one, has been thought out, worked out, and perfected by the Cornings. No experiments are left for others. The following of the Corning Method, as told in this Book, means assured success and profit. Price \$1.00, postpaid, to any address.

THE CORNING EGG FARM, BOUND BROOK, N. J.

Gleanings in Bee Culture



VOL. XL. MARCH 15, 1912. NO. 6



T. B. TERRY
In His Sixty-seventh Year

I am Still Gaining

That is what T. B. Terry says to-day, when he is 67 years old, after being so broken in health at 40 years of age that all the doctors who saw him and tried to help him gave him up to die. But Mr. Terry got well by working out his own cure. He tells all about it in his great health book.

"How to Keep Well and Live Long"

There is no other book like it in the world. You don't need to know medical words or medicines to understand it. It is written clearly and simply, and has back of it the personal experience which tried and proved every step of the way to a long and healthy life. You can follow the same way. The book is only one year old, but over 5150 copies of it, to date, are making men and women healthier and happier because they have read and followed the teachings of its pages.

READ BELOW what One Man Has to Say about THIS GREAT BOOK:

I enclose check for \$3.55, for which please send me five more copies of Mr. Terry's book. This makes 75 copies to date that I have sold, or, rather, distributed, all but these last five, and will eventually make it 100. Have given away quite a good many, and keep from two to four loaned out all the time. Gave my pastor two copies for the same purpose. Do not desire to make any clear profit on the sales; give to libraries and wherever I think they will do any good. The book has done me a great deal of good. I consider it a good thing and believe in passing a good thing along. We are not to blame if our light is small and not very bright, but we are to blame if we hide that light under a bushel. Before the book was issued I had interested a friend, a retired physician, in "Health Hints." He wanted a copy of the book as soon as out, and has bought in all 15 copies from me. He is an enthusiastic admirer of Mr. Terry—so much so that he got me to go with him to Ohio to see him last winter, and on our way home he said: "We found everything just as the book said, except Mr. Terry's picture; that does not do him half justice," and I say amen to that. The picture makes him look too old and half asleep. Would like to see a better one in the new edition. I gave a copy of the book to a near relative, an active practicing physician, who read it carefully and critically, and pronounced it

good. He takes The Practical Farmer and reads it every week. I asked him last week what he thought of Terry's teachings now. He said: "Good common sense, and we doctors need to learn a whole lot of common sense." My friends call me a crank on the subject of health. Well, a crank is used to move things. Many of my converts are as radical as I am. About Christmas I loaned our blacksmith a book; he has bought four copies now, three to loan. Talks health to every one who comes in the shop. He told me to-day he felt like a new man physically. "Could not have stood it long as I was feeling last fall." This is the kind of pay I like to get for my work. My last sale was to a very busy man who told me he had no time to read a book. I reminded him that his brother was just as busy a man as he, but one day a few months ago he found time to go to the hospital. The operation was very successful, but he died in a day or two. Another friend had no time to read a book—too busy. He has plenty of time now; had a stroke of paralysis, and the doctors say can never walk again. When a man or woman not in perfect health (and how many are?) tells me they have no time to read a book, I regard the statement just as I would were they to say, should I tell them their house was on fire, "Yes, I know it is; but I have not time just now to put it out."—T. T. HIBBEN, McKeesport, Pa.

Mr. Terry's Book, bound in cloth, is sold for \$1.00 or given with a year's subscription to "Gleanings in Bee Culture" for \$1.50

In connection with a year's subscription to GLEANINGS, 30 cents additional is required for orders from Canada, or 60 cents additional for orders from foreign countries.

Nearly a thousand copies of this helpful book have been distributed through the publishers of "Gleanings in Bee Culture," and not a single reader has expressed regret at his bargain. Mr.

A. I. Root heartily endorses Mr. Terry's writings on health subjects.

The Word

“falcon”

In Beedom

signifies the best in hives, supers,
sections, foundation, honey boards,
shipping-cases, smokers, extractors,
and all allied apiarian supplies.

Insist that you get

“falcon” Brand

Beekeepers' Supplies

Carload Distributors

Georgia—J. J. Wilder, Cordele, not only sells the best bee supplies—the FALCON BRAND—but being one of the most extensive beekeepers in the Southeast he can help you with your little perplexing problems. Write him.

California—John C. Frohlinger, 257-'9 Market St., San Francisco. Pacific Coast beekeepers hailed with delight this opportunity to get well-made hives. A full stock is in store of every thing—let him quote on your rush wants.

Missouri—C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City.

Ohio—Fred W. Muth Co., 51 Walnut St., Cincinnati.

Illinois—W. T. Falconer Mfg. Co., 117 No. Jefferson St., Chicago.

Pennsylvania—A. M. Applegate, Reynoldsville. J. R. Rambo, Collingdale, suburb of Philadelphia.

New York—Deroy Taylor, Lyons. Hudson Shaver & Sons, Perch River. W. T. Falconer Mfg. Co., Falconer.

Texas—J. W. Reid, Uvalde. A full carload of brand-new bright hives, Uvalde covers, all-wood frames, will be in stock when you read this. Mr. Texas Beekeeper, do you know what FALCON quality means? Now is the time to find out. Get a trial lot of our well-made supplies, and you will never use any other. Let Mr. Reid have a list of your wants for quotation and a request for a Red Catalog.

Massachusetts—Ross Bros. Co., 90 Front St., Worcester.

Rhode Island—Cull & Williams, 180 Washington St., Providence.

If you don't find a dealer in your locality, don't think there is none. Drop us a postal for the name—for there are many others—or better still give us a list of your wants for quotation at our nearest dealer.

Send for Red Catalog.

Simplified Beekeeping.

A concise little treatise which gives clear cut, a complete outline of this interesting occupation—beekeeping. It's cheerfully sent postpaid together with our RED CATALOG from our office or from any distributor.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, March 5. **BLAKE-LEE CO.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, March 5. **WALTER S. POWDER.**

BUFFALO.—The demand for white-clover comb honey is good at about one cent over last quotations. It will, no doubt, hold the advance, for there is very little arriving. Other grades are in a little better demand at firm prices. We quote fancy white comb honey at 18 to 19; No. 1 ditto, 17 to 18; No. 2 ditto, 13 to 15; dark ditto, 11 to 12; white extracted, 8½ to 9; dark, 7 to 7½. Beeswax, 28 to 30. Buffalo, Feb. 26. **W. C. TOWNSEND.**

DENVER.—The supply of strictly white comb honey is about exhausted, and prices are, as a consequence, higher than they otherwise would be, as the demand is light. We quote No. 1 white comb honey, per case of 24 sections, \$3.60; No. 1 light amber, \$3.35; No. 2, \$3.15. White extracted brings 9 cts.; light amber, 8; strained, 6½ to 7½. For clean yellow beeswax we pay 25 cts. in cash or 28 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N.
Denver, March 4. **F. Rauchtuss, Manager.**

CHICAGO.—The extremely cold weather we have had the past two months has restricted the sale of comb honey to a certain extent, as it could not be shipped; but with more moderate weather in view we can look for a more active demand from now on. We shall be pleased to get in touch with any prospective buyers of comb honey, and will quote them attractive prices. We still have for sale some very fine lots of Wisconsin comb honey packed in 24-section flat cases, glass fronts, and Western comb honey packed in double-deck cases, glass fronts. Extracted honey has been moving more readily. We still have in stock one car of fancy Utah water-white alfalfa extracted honey. We quote fancy and No. 1 white Wisconsin clover comb honey 16 to 17; No. 2 white and light amber, 15 to 16; medium amber and other inferior grades, 2 to 3 cts. per lb. less. Western alfalfa comb honey in double-deck cases, glass fronts, 16 to 16½; second quality, \$3.25 per case. Bright pure beeswax is firm at 30 to 32.

Chicago, March 4. **S. T. FISH & CO.**

Continued on page 5.

Mr. New Beeman.—"Well, well, nailing up your beehives already? Aren't you rather early?"

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Gleanings in Bee Culture

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Honey Markets, continued from page 2.

CHICAGO.—The volume of trade during February was not as large as we looked for, and there still remains quite a quantity of both comb and extracted honey on sale. For the No. 1 fancy white comb, 17 to 18 cts. can be obtained; but for the off grades there is little demand, with prices ranging from 1 to 5 cents per lb. less according to color, flavor, and condition. Extracted white is salable at 8 to 9 cts., and the amber at 7 to 8 cts. Beeswax is steady at 30 to 32.

Chicago, March 4.

R. A. BURNETT CO.

NEW YORK.—There is nothing new to report as to the condition of our market. As we said in our last, comb honey is pretty well picked up; and the few odd lots that are coming in find ready sale at prices ranging from 14 to 17 cts. for white and from 11 to 13 for dark or amber. The market on extracted is not what could be reasonably expected at this time of the year. There has been a gradual falling-off in the demand during the last couple of months, which, with large stocks on hand, has had a tendency to lower prices, which remain nominal, or about the same as in our last quotation. Beeswax is steady at 30 to 31 cts. per lb.

New York, March 4. HILDRETH & SEGELKEN.

ST. LOUIS.—We have to report a slow movement in the honey market on both grades, comb and extracted. The stock of comb honey is, however, very small and not burdensome. Extracted honey is in better supply. We quote fancy white comb honey at 17; No. 1, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light-amber California sells at 8½ to 9; Southern amber, colored, 8 to 8½ in five-gallon cans; Southern, in barrels and half-barrels, 7 to 7½. There is no white-clover extracted honey offered in this market at present. Prime beeswax brings 30 cts. per lb.; impure and inferior, less.

R. HARTMANN PRODUCE COMPANY.

St. Louis, March 4.

(Organized 1870)

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ZANESVILLE.—The local market is about as last quoted. In small lots, best grades of white comb bring 20 cts.; best extracted in 60-lb. cans, 11 to 12. Both comb and extracted are in limited demand at this season; but the approach of spring should have a stimulating effect. Producers are being offered 29 cts. in cash or 31 in trade for beeswax.

Zanesville, O., March 6.

E. W. PEIRCE.

SCHENECTADY.—There is but very little doing in our honey market, and the stock on hand is very small. We have one small lot of white comb that is moving off slowly at 18 cents. Extracted is not moving off as well as it should at this time of the year, even at the prevailing low prices. We have quite a lot of white put up in 5-lb. paper bags, but it does not prove to be a free seller.

Schenectady, March 2.

CHAS. MACCULLOCH.

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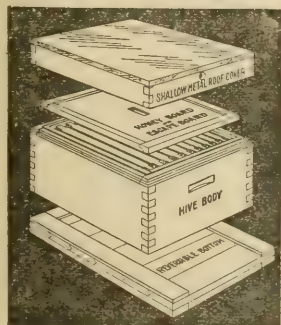
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ALSIKE - CLOVER SEED.

Medium Red Mammoth, Alfalfa, Sweet Clover, Bluegrass, Redtop, Rape, Millet, etc. Also SEED CORN. Catalog of Apiary Supplies free. Write for prices on seeds and samples.

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The best and lowest-priced double-wall hive on the market. This hive has 7/8 material in the outer wall, and is not cheaply made of 3/4 material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

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Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, 3 1/2-inch, each, .85; mail, \$1.10.

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Honey-knife, .70; mail, .80.

Manufactured only by

BINGHAM
 SELF-CLEANING
 BEE SMOKER



A. G. WOODMAN CO., Grand Rapids, Mich.



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

A Letter to You Quick

If you will, write me for an estimate on the list of goods that you are likely to require during the coming season. Perhaps you would like to make some inquiry about some of the goods which I offer, and answering your letters will be a real pleasure. Some winter losses are being reported; but beekeepers are not discouraged, and many of the losses are being replaced with modern and better equipments.

The hive question is an interesting one at this season of the year, and I can supply you with any style that you may prefer—ten-frame, eight-frame, metal-spaced frames, metal cover, and any surplus equipment that you may wish, and also the Danzenbaker hive with any of its equipments. Those of you who are getting your hives early, assembling and painting at your leisure, are certainly hitting the nail on the head. Sections and brood-frames with foundation attached will be found a great convenience when the swarming season opens. You may require a new smoker, an improved hive tool, or some of the conveniences which my catalog describes. Every thing of Root quality, and readers of this magazine know what that means.

If you are in need of honey I believe I can make it to your interest to place your order here. A honey circular and a sample of honey free by mail to prospective buyers.

If you are accumulating some beeswax you can realize 31 cents per pound for it by sending it here now.

Be sure to send for my new Bee Supply Catalog.

WALTER S. POUDER, Indianapolis, Ind.

859 Massachusetts Ave.



Carniolan Alpine Queens

—GREY WORKERS—

Shipped to all Parts
of the World.

Select tested, March,
April, May, \$5.00; June,
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Select untested, June
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Mailed, postage free. Safe arrival guaranteed. Dead queens replaced if returned in 24 hours. Intern. money-order with every order. References respecting financial and commercial responsibility of the undersigned Ass'n can be had at every Imp. and Royal Austro-Hungarian Consulate in the U. S. and Canada. Write for our booklet Orders for nuclei and hives can not be filled until every thing concerning this line of business is arranged properly. Remit money order and write English to

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Ancona Fowls

In the Front Rank of Profitable Poultry

Beautiful, Lively, Small Eaters, Mature Early, Pullets lay when Sixteen Weeks Old, Great Winter Layers, Eggs white and large, Big Demand for Stock and eggs.

Ancona World,

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Monthly, 25c. the Year

An Encyclopædia of Ancona matters.

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Send \$2.50 for 1000 plants, Lady Thompson, Klondyke, Aroma, or Gandy. Also grapevines and fruit trees 10 cents each. Order now.

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GARDEN, FIELD, AND FLOWER SEEDS,

Wholesale and Retail; also Poultry Supplies, Etc.

Our seeds are selected and grown with special reference to the South. We not only have the right seeds but we know what to recommend for the best results here. Our prices are right. Our catalog is free, and contains valuable information.

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NEW STRAWBERRIES! 1912 Catalog FREE to all. Reliable, interesting, and instructive. ALL THE NEW EVERBEARERS, and other important varieties. Address
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PUBLICATIONS ON BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
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Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

1	2	3	4	8	9	10	11	12	15
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Street Address or R. F. D.

Town

G.B.C. 3-15-12 State.....

WITH OUR ADVERTISERS AND READERS

If one expects to get the fullest enjoyment and returns from his garden this summer, it is time to be thinking about the tools that will be necessary; and the same is true also of the farm and fields, for one can not expect to get the most out of the soil if he hasn't suitable tools with which to cultivate it and to harvest the crops when they are grown. Good tools mean a keener pleasure in working the little garden plot, and correspondingly larger returns from it; and they also mean a larger per cent of profit from the fields. We mark the prosperous farmer nowadays by the appearance of his buildings, the tools he owns, and the care he takes of them; in fact, he can't be prosperous unless he does use all these means for getting the very most out of the soil and the time given to its cultivation. The toolmakers this spring are sending out some very attractive catalogs, and we are sure it will pay any one interested in these things to read them. Don't blame the trusts, the railroads, nor the politicians if your place isn't yielding what it should. Get busy this spring, and see if the trouble doesn't lie nearer home.



May be some new wheels are needed for the wagon. There are wheels and wheels, and we didn't know there was so much difference in them until we read the other day of an expedition undertaken some time ago across the Nubian Desert, which failed because the wheels of the carts and wagons would break down under the intense heat and heavy sand until a caravan was finally fitted out with Electric wheels, and finally made the trip, opening a vast new territory to civilization. This company states that their wheels are especially adapted to farmwork, as they will give a lighter draft and easier loading than the high-wheeled wagon. They are offering a picture of the camel caravan to any one addressing the Electric Wheel Co., Box — Quincy, Ill.



Fences are another thing that usually need attention at this season. A good wire fence is not an expenditure but an investment, for a really good one will last for more than twenty years. Wire fencing bought direct from the maker may be had at very reasonable prices; in fact, there is not the proportionate advance in this that there is in other lines. Mr. A. L. Kitselman, of Kitselman Bros., Muncie, Ind., built the first practical working machine for making wire fence; and because of the skepticism of dealers of the success of his plan he began to market his product direct to buyers, and has continued that policy since, although at this time wire fencing may be had from any hardware or implement dealer. Poultry fencing is said to be much more satisfactory than the old-style netting; in fact, wire fencing is made for all sorts of special purposes, and the right kind may be depended upon to do the work.

Southwestern Beekeepers!

At no other point in this part of the bee-keeping world can you get the combination of prompt and efficient service and excellence in **QUALITY** of goods that we can give you from

San Antonio.

The freight and express facilities of our city are almost unlimited. Shipments may leave at once over the fastest routes, and prompt delivery is assured. Our Mr. Udo Toepperwein is, perhaps, the best authority on bee-keeping subjects in this part of the country. Not many years ago he was a practical beekeeper on a large farm, and his early experience in this line enables him to understand the needs of beekeepers better than the ordinary supply dealer. He knows supplies, both from the standpoint of a user and a dealer, and you may depend upon his judgment to give you just what you need.

Our stocks are now complete for early orders; and with the prospect there is for a good season, delays are dangerous. All our goods are new and fresh, of Root manufacture, which is a guarantee of the quality. We sell in original factory packages at factory prices, and offer the manufacturer's discount of one per cent for March cash orders.

Weed Process Comb Foundation.

Our trade in this product has increased to such an extent that we have been obliged to install our own plant to make this. We can use all your wax at current prices, and can furnish you foundation which we are sure will please you, both in quality and price.

Honey-cans.

We have our usual large stock, and can fill orders the day they are received. Try us this season and be satisfied.

Our catalog will be sent on request, also delivered, prices quoted on any list submitted. You can save money by ordering from us. We have paid the freight to San Antonio, and our stock is at your service. Whether your order is large or small we shall be glad to handle it. Give us a trial and we will do the rest.

Queens.

Untested, April 10 to May 10, \$1.00 each. Tested, March 1 to April 10, \$1.25 each. Selected tested, March 1 to April 10, \$2.00 each. Breeding queens, the very best, April 1 to December 1, \$5.00.

No-drip Shipping Cases.

A big stock of these on hand at low prices. Write for particulars. It will pay you to get our prices.

Toepperwein & Mayfield,

Corner Nolan and Cherry Sts.

San Antonio, Texas.

When You Buy Lewis Beeware You Get ———

Lewis Quality—which means that all Lewis Hives are made out of clear white pine, and Lewis sections made out of fine bright basswood. The material in these goods is the best obtainable, and selected by experts.

Lewis Workmanship—The Lewis factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has had thirty-five years of bee-supply experience, the superintendent of bee-hive department twenty-nine years; the superintendent of sections twenty-eight years. These and many other skilled men have a hand in all the Lewis goods you buy.

Lewis Packing—All Lewis Beeware is carefully and accurately packed. A patent woven wood and wire package, made only by the Lewis Company, is employed largely in packing. This makes the package light, compact, and damage-proof.

Lewis Service—Years ago all goods were shipped direct from the factory, with attending high freight rates and delays during the honey season. Now Lewis Beeware can be obtained almost at your own door. Over thirty distributing houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

G. B. Lewis Company, Manufacturers of Beeware, Watertown, Wisconsin

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

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Get It From the Factory Direct



KITSELMAN FENCE

Made from thoroughly Galvanized Open Hearth steel wire. Our free Catalog shows 100 styles and heights of hog, farm and poultry fence at from

11½ Cents a Rod Up

Sold on 30 days free trial. If not satisfied return it at our expense and we will refund your money. 80-rod spool of Ideal galvanized

BARBED WIRE \$1.40

Write today for large Free Catalogue.

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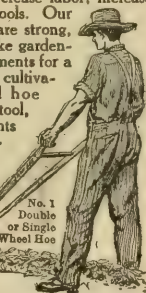
GOOD CULTIVATION

trucker, small fruit grower, can decrease labor, increase crops and profit by using Iron Age tools. Our Single and Double Wheel Hoes are strong, light, compact. Easy to push—make gardening a real pleasure. Special attachments for a dozen uses. Perfect weed killers, cultivators, hillers, etc. We are wheel hoe specialists. If you need a garden tool, you need an Iron Age. Attachments can be added as needed; they reduce tool expense. Ask your dealer to show them. And send for free booklets of complete line garden, orchard and field labor-saving tools.

A postal will bring them promptly. Bateman Mfg Co., Box 1201 Glenloch, New Jersey.

If you would have a bigger, better garden, good cultivation is absolutely necessary.

The home gardener,



STRONGEST FENCE MADE FROM FACTORY DIRECT TO FARM



26-inch Hog Fence,15c.
47-inch Farm Fence,23½c.
60-inch Poultry Fence,30c.
80-rod spool Barb Wire, \$1.40

Many styles and heights. Our large Free Catalog contains fence information you should have.

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MOST durable fence made. Heaviest wire. Double galvanized. Stock strong. Chicken tight.

13 to 35¢ per rod. Sample free. We pay freight. The Brown Fence & Wire Co. Dept. 91 Cleveland, O.

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The successful farmer and gardener works with the *best equipment*. The day of old-fashioned tools is past. On the best-tilled farms and gardens the world over, Planet Jr tools are doing the work. Over two million crop-growers use these tools and find them unequaled.



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stands everywhere for the latest-improved, most useful, and economical farm and garden tools. Products of 35 years' experience by a practical farmer and manufacturer who has made a science of tool-building. 55 tools; guaranteed.

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Clark's Reversible Bush and Bog Plow is just the tool to subdue baked soil, bogs or newly cleared forests or stump land. Cuts a track 5 ft. wide, 9 in. deep. Has eight 24-inch cutlery steel disks. Turns the earth to or from stumps. Will kill any bush or plant that grows and leave land true and clear. Send for new book, "Intensive Cultivation." It's Free.

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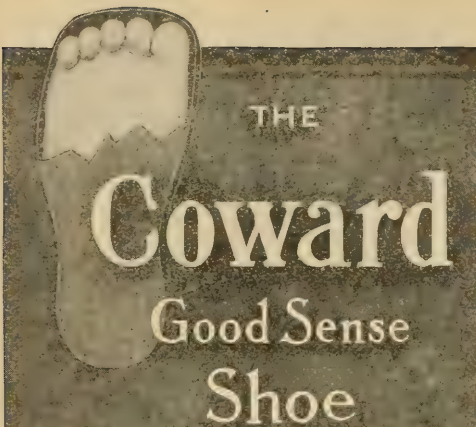
Something New
Gets twice the results

with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted, Booklet Free.

Rochester Spray Pump Co. 207 Broadway Rochester, N. Y.

Spraying
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The good sense last, narrow waist, free tread, and snug heel-seat furnish natural support and protection for children's feet. This shoe strengthens weak ankles, rests the arch, and prevents "flat-foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

FOR CHILDREN, WOMEN AND MEN.

Send for Catalog. Mail Orders Filled.
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Big Potato Crops

Banish blight and bugs by spraying the *new, thorough* way, saturating thoroughly. Over 300,000 farmers and gardeners use

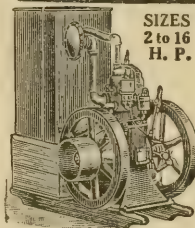
Brown's Auto Sprays

Auto Spray No. 1 is most powerful and efficient of all hand sprayers. Capacity four gal. Guaranteed to do best work in shortest time at lowest cost. Auto pop nozzle throws round, fine, and coarse sprays and streams. Easiest to handle. 40 styles and sizes—hand and power outfits. *Brown's Non-clog Atomic Nozzle* for large sprayers—great time and money saver, positively will not clog—adjustable from fine spray to powerful stream. Write for complete Spraying Guide and full particulars.



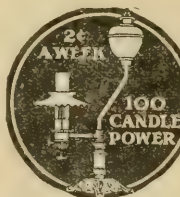
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On the hardest job you can find. It won't buck or complain; feed it on kerosene, gasoline, distillate or any liquid fuel. Runs on natural gas as well—no waste—no repairs. Saves hired help—works night and day. Try it 15 days—if it don't suit, send it back—7,000 in use—they *don't come back*. Right now you save big money on a Columbia if you act quick. Write today for 1912 plan and Free Book full of engine facts. **Columbia Engine Company**
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Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

THE BEST LIGHT

Lighted instantly. Over 200 styles. Agents wanted. Write for catalog

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One Price—One Quality—Now

50,000 best Columbus Buggies ever made—exactly alike—one quality—one price—offered this year direct at only \$1 factory profit on each to us. We've reorganized whole factory to make this. 5 weeks Free Trial—2 year guarantee. Satisfaction or money back. Write. Big Facts Portfolio Free.

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\$50

Keep Ants Away

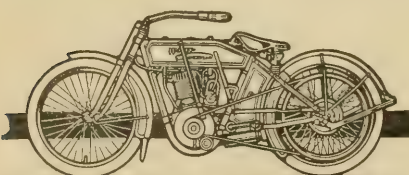
They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM

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and will stay away from beehives so protected. Write for circular.

Carbolineum Wood Preserv'g Co.
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TRAVELS 10 MILES FOR A CENT. Any speed from 3 to 60 miles. The new **Ful-Floting** seat makes it the most comfortable motorcycle made. The **Free-Wheel** control permits the machine to be started like an auto. Send for booklet describing features.

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10,000 High
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Easy work for you, light draft for horses. The one unbreakable, low-down handy wagon. Steel wheels, all heights and tire widths. Save rutting. Send for free book on labor saving farm hauling.

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That he calls
"POULTRY SERMONS"
—READY FOR YOU

Send a postal sure this time for Johnson's book—the best and biggest ever in 36 years—hundreds of actual new photographs showing

Old Trusty Incubators
Used by many hundreds of thousands of most successful poultry raisers.

40, 60 or 90 Days' Trial
Under \$10 now, 10 Years' Guarantee.
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Sensational low price, high quality offer will please you. Send name now. 25 years' successful hatch records back me upon quality. Price speaks for itself.

Ideal Incubators

and Brooders have made fortunes for owners. None better at any price, yet my offer would make you class the ideal with "cheap" machines if I quoted it here. Send me your name. You'll be glad you wrote J. W. Miller.

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\$9.35 BUYS BOTH
125 EGG INCUBATOR \$7.35
125 CHICK BROODER \$4.00

A Bargain—THE NATIONAL

Made of sheet steel. Double lined with asbestos and fibre board; cold rolled copper tank. Deep nursery. Best incubator made. Big hatches guaranteed. Send for free catalog and poultry book. **National Incubator Co., 1226 19th St., Racine, Wis.**

SUCCESSFUL Poultry Lessons FREE

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SEND A POSTAL. Get Greider's big book FREE; also his facts about his SUCCESSFUL Poultry Lessons given to buyers of

Successful INCUBATORS and BROODERS

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\$675 and up



This Month Jim Rohan's POULTRY BULLETIN tells the latest facts of the year on how you can make the most money raising chickens. Get it. Send your name on a postal. Get the real World's Championship Facts from Jim Rohan, Pres., Belle City Incubator Co.

\$7.55 Buys Best 140-Egg Incubator

Double cases all over; best copper tank; nursery, self-regulating. Best 140-chick hot-water brooder, \$4.85. Both ordered together, \$11.50. Freight prepaid (E. of Rockies). No machines at any price are better. Satisfaction guaranteed. Write for book today or send price now and save time.

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Poultry Book FREE

Tells Bee Keepers how to handle poultry for health, pleasure and profit. 8 chapters of facts, figures and pictures of successful methods.

Cyphers Incubators and Brooders

Are world's best. Free Guide explains why, and tells about "Cyphers Company Service" which stands back of every Cyphers customer.

Cyphers Incubator Company, Dept. 69 Buffalo, N. Y.

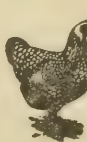
FOR SEWING LEATHER

The Stewart Automatic Awl. Feeds wax thread from spool. It does the work of a harness makers machine. Is indispensable for repair work. Agents wanted. \$1.25 postpaid. Send for cat.

STEWART-SKINNER CO. 85 Hermon Street, Worcester, Mass.

YOUR HENS The Story of 25 Years
YOUR FARM
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with Poultry and Farmers and Fanciers will help many Farmers get more eggs—better prices; make more and save more money; tells things few folks know on making money with hens. Find out about America's Largest Line of Incubators and Brooders, and get six poultry chapters written by Robert Essex himself—It's all in our Free Catalog—Write today. Address **Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.**



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Book and calendar for 1912 contains 200 pages. 72 varieties pure bred, 62 colored plates. Many other illustrations, descriptions. Incubators and brooders. Low prices on all stock and eggs. How to raise and make hens lay. Get my plans. All say it's great—this book—only 15c. Price list free.

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Make ENGRAVINGS for GLEANINGS

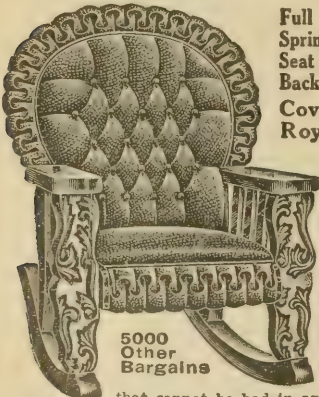
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500 Rooms European Plan
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The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.
We have three of the best Cafes in the City, and prices are reasonable.
Write us for booklet or to make reservation.
M. & M. Hotel Company, Proprietors,
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ROYAL LEATHER ROCKER



Full Spring
Seat and Back—
\$3.85
Covered in Best
Royal Leather

Look at the picture; doesn't this Rocker look inviting with its high, broad, shapely back and deep roomy spring seat? It's made to last forever, and its wide arms, supported by six neatly turned smooth spindles, and massive front carved posts, give it the exclusiveness and style

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that cannot be had in any other rocker. Frame thoroughly seasoned oak, high golden and gloss finish. Best quality Black Royal Leather; workmanship first-class. Price but \$3.85 makes it the biggest bargain ever offered. We can afford such values because we own our own timber lands, saw mills, factories and salesrooms. Money back if it is not worth double. Send for our large FREE cash catalogue of Furniture, Rugs, Curtains, etc. Learn at once how much cheaper and better you can buy for cash direct from the manufacturers. We save you all extra profits. Write NOW; better still, enclose \$3.85 for this comfortable rocker. Order by number 670. Address. (11-1)
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PYROX

Better Fruit

SPRAY WITH PYROX

NO WORMS. Pyrox kills all leaf-eating insects, codling moth, canker worm and kindred pests.

NO SPOTS. Pyrox prevents or destroys fungous growths, scab, blight, rot, etc., thus producing beautiful,

PRIZE QUALITY fruit. Leading fruit growers and exhibitors like Hardy of N. H., Repp Bros., also Barclay, of N. J., Tyson of Penn., have used Pyrox for years. You know *their* record. Pyrox is **THE ONE BEST** spray; smooth, creamy, free from lumps, mixes easily in cold water, doesn't clog the nozzles. It sticks to foliage even through heavy rains, remaining effective for months, thus saving expense of respraying. All ready to use by adding water.

GOOD FOR ALL FRUITS AND VEGETABLES

SEND FOR FREE BOOK ON SPRAYING with prices, etc. Also see if your dealer has Pyrox on hand. Wise growers are ordering early.

Bowker Insecticide Co.
43 Chatham St., Boston.
We also ship from Baltimore and Cincinnati.

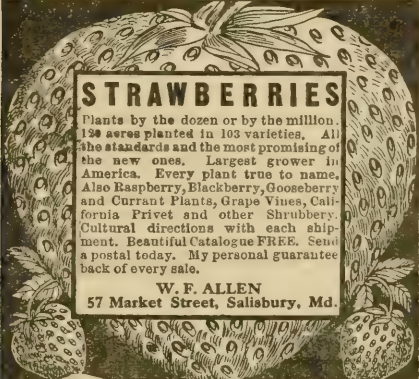


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With Rubber Tires, \$18.45. Your Wheels Re-rubbered, \$10.30. I make wheels 4 to 4 in. tread. Tops, \$6.50. Shafts, 2.10; Repair Wheels, \$5.95; Axles \$2.25; Wag- on Umbrella free. Buy direct. Ask for Catalog 47
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Plants by the dozen or by the million. 128 acres planted in 103 varieties. All the standards and the most promising of the new ones. Largest grower in America. Every plant true to name. Also Raspberry, Blackberry, Gooseberry and Currant Plants, Grape Vines, California Privet and other Shrubbery. Cultural directions with each shipment. Beautiful Catalogue FREE. Send a postal today. My personal guarantee back of every sale.

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Twenty odd years ago, Salzer's White Bonanza Oats won the world's prize of \$500.00 offered by the American Agriculturist for the heaviest yielding oats.

Our new Rejuvenated White Bonanza Oats gave during 1910 and 1911 sworn-to yields ranging from 80 to 250 bushels per acre. Does well everywhere, not so particular as to soils and climes.

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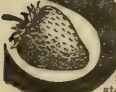
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The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

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These booklets are 6 by 9 inches, all profusely illustrated

POULTRY SECRETS is a great collection of discoveries and methods of successful poultryry. It gives Felsen's famous mating chart, the Curtiss method of securing 50 per cent more pullets than cockerels, Boyer's method of insuring fertility, with priceless secrets of mating, breeding, feed and feeding, how to produce winter eggs, and others long jealously guarded, now first published.

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By special arrangement with the publishers, for a limited time we can offer the **FARM JOURNAL FIVE** years and **GLEANINGS IN BEE CULTURE** one year in advance, **BOTH FOR \$1.00**. Or **FARM JOURNAL** **FOUR** years and any one of the booklets, "Money-making Secrets," with **GLEANINGS** for one year . . . **ALL THREE for \$1.00**

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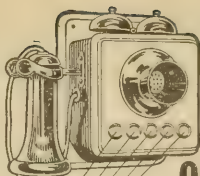
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By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . . Tells a beginner's experiences in a way to help other beginners.

PRICE \$1.10 POSTPAID.

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GET OUR NEW FREE BOOK: How to Make and Run a Hot-bed



Single sash set up ready to use.

Make and Run a Hot-bed, which gives full directions for this work, and tells what crops are most easily grown. Copies are sent free upon request. Prices on sash are as follows:

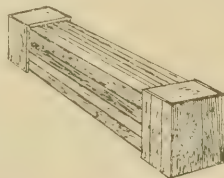
One sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each; put together, 10 cts. each extra. Glass 8x10, just right for the above, \$2.50 per box of 90 lights; 5 boxes, \$23.30 each; 10 boxes, \$22.20 each. Prices of glass subject to change. Get our list price at time of ordering.

Some years ago we had a call for hot-bed sash and made up a small order. Our wood-working facilities being most complete we found it possible to manufacture sash of first-class quality at a price slightly under that charged elsewhere for an article of similar quality. Orders continued to come in occasionally, and we finally listed cold-frame or hot-bed sash in our catalog. Since then the demand has grown each year.

We make the sash of regular size, 3 ft. 4 in. by 6 ft. for four rows of glass 8 in. wide. Each sash holds 28 panes of glass, size 8 by 10 in. If any prefer larger glass we will furnish sash for three rows of 11-in. glass at the same price. Sash are made of cypress and are almost impervious to decay. Sash are usually shipped from here knocked down at a low rate of freight, and can be put together by anybody, as they are mortised and tenoned in the regular way. They are 1½ in. thick, outside bars about 2½ in. wide, and inside bars about 1½ in. The bars are grooved to slip the glass in place.

Each season we ship sash in carload lots to large seed-houses, and we have complimentary reports on their quality. It is both interesting and profitable work to maintain a hot-bed, and every one who has a garden spot should build a cold-frame. We have prepared a small book entitled "How to

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Bundle of 5 sash, knocked down and crated for freight shipment.

THE A. I. ROOT COMPANY,

Medina, Ohio

SCIENTIFIC POULTRY RAISING

It is Just as Applicable to Twenty Hens on a City Lot as to a Thousand on a Farm. Conducted as an Experiment it will Offset Part or All of Your Living Expenses, and Increasing to a Larger Scale Multiplies Your Profits Proportionately

NOT only is there a good living in poultry raising, but it can be developed by ANY ONE into an exceedingly profitable business. There is a vast difference, however, between simply "keeping a few chickens" and practical poultry raising on a scientific basis. The latter way is the ONLY RIGHT way, and as long as you are going to do a thing, you might as well do it right as do it wrong. Scientific poultry raising produces physical results and financial profits that are absolutely beyond the understanding and belief of those who are in the Oh-yes-we-keep-a-few-chickens class.

For instance, it is absolutely news to them that a family of six can make a good living from six hens, they do not know that 1,600 eggs, or 160 pounds of broilers, can be produced per annum in a 6 ft. square corner of a garden, or on the flat roof of a tenement house. Yet these statements are justified by what has been and is now being accomplished by the wonderful Philo System.

FREE—These Six Thoroughbred



It may surprise even you to learn that at the Philo Plant, in Elmira, where fertile eggs are produced and hatched every day in the year, a **half acre** devoted to poultry has produced in twelve months a **net profit of twenty-five thousand dollars!** If you will come to Elmira you can see with your own eyes the simple details of the method by which these splendid results are obtained, and all that is done at the Philo Plant you yourself can do. There is nothing difficult about it. It is as simple as a, b, c. And if you cannot come and personally inspect the working of the Philo System, you can learn all about it by reading the Philo Books.

"**Making Poultry Pay**" contains 96 pages of carefully written and selected matter of immediate and permanent value to every poultry raiser, and numerous illustrations. We will mail you this book for 10 cents in coin or stamps to cover postage, just to show you some facts about the poultry business and its possibilities that you possibly never dreamed of. Our big book, "**Philo System of Progressive Poultry Keeping**," is the text book of poultry raising. It is complete in every department, exhaustive in description of causes, reasons and results, elaborately illustrated, and conveys to every purchaser the right to use the Philo System and any and all of the special Philo appliances. It tells you plainly and precisely how to obtain Philo results, and if you follow these simple instructions you positively cannot fail! Price, \$1.00, postage paid. "**The Poultry Review**" is a monthly publication edited by E. W. Philo, the originator of the Philo System, and an able staff of writers comprising expert and practical poultrymen. This magazine is devoted exclusively to the idea of being immediately and directly helpful to its readers. Subscription price, \$1.00 per annum.

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The heat is governed by a double wafer regulator that is placed so close to the eggs that it is sensitive to the natural heat of the growing embryo chick in the egg as well as to the supplied heat from the lamp. The nest, heater, lamp, thermometer and the automatic appliance to release the surplus heat, make a complete hatcher that is absolutely reliable, and so simple in construction as to require no detailed description here. The accompanying pictures of the complete machine and the nest are self-explanatory. Capacity, 50 eggs. Constructed entirely of metal, except insulation. Is self-regulating. Requires no supplied moisture, and will last a lifetime. Shipping weight, well-boxed, 20 pounds. Bottom picture shows Hatcher with heater or cover removed.

PRICES F. O. B. ELMIRA.

One "Cycle" Hatcher, completely equipped,	\$ 6.00
Two " " " "	11.50
Four " " " "	22.00

CYCLE HATCHER COMPANY

322 LEHIGH AVENUE, ELMIRA, N. Y.

WE HAVE BRANCH HOUSES IN THE FOLLOWING STATES:
California, South Dakota, Colorado, Iowa, Missouri, Illinois, Texas,
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WRITE TO ELMIRA FOR
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WRITE FOR FREE BOOKLET
"A Little Poultry and
A Living."

YIELDS SENSATIONAL PROFITS!

Is Simply a Matter of Proper Care in Selection, Feeding, Breeding, Housing, Hatching and Brooding. Experience is Not Necessary. You Have Only to Follow the Rules of the Wonderful Philo System, and Success is Assured.

POULTRY raising is today on a scientific basis. You can go into it knowing positively that it is going to return you both pleasure and profit — to say nothing of the satisfaction of having on your table, always, strictly fresh, sweet eggs; and you can increase this profit just as much as you please, according to the amount of time you devote to the work. Whether you raise ten hens or a thousand, no "chicken yard" is needed. The hens are more contented and lay better when they are confined in the Philo sanitary coops, and for the same reason the meat of your broilers is sweeter and tenderer when they are not allowed to toughen their muscles by excessive running and exercise. Furthermore, when chickens run you cannot control their food as you can when they are kept in Philo coops; and proper food makes sweet eggs, tender meat, and breeds improved stock.



**COMBINED
BROODER-
HATCHER**

Our Brooder-Hatcher does double duty meeting the requirements of all classes of poultry raisers, whether they raise only a few chickens annually, or large numbers. It reduces the cost to about one-half that of hatching with incubators or hens, and it makes possible the raising of fowls in small spaces—in city yards, on lawns, gardens, in boxes, sheds, on porches, roofs or in other out-of-the-way places where a wooden machine could not be operated.

This combined Brooder-Hatcher is the result of many years of experimenting to make one lamp do double duty, and at the same time have a machine constructed to successfully do the work artificially and carry out the laws of incubation and brooding. Its capacity is 50 eggs, but just as good results are obtained by setting a few eggs every day or once each week or ten days, thus taking off a hatch as often as you wish, and filling in empty portion of the machine with fresh eggs. This is the machine that has helped largely in getting such big returns from a few hens in the Philo System plant. Shipping weight, well-boxed, 25 pounds. Bottom picture shows inside of Brooder-Hatcher, hatching eggs and brooding chicks at the same time.

PRICES F. O. B. ELMIRA:

One Brooder-Hatcher, completely equipped,	\$ 8.00
Two " " " "	15.50
Four " " " "	30.00

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WE HAVE BRANCH BUSES IN THE FOLLOWING STATES:

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WRITE TO ELMIRA FOR
CATALOGUE OF YOUR
NEAREST BRANCH.

WRITE FOR FREE BOOKLET
"A Little Poultry and
A Living."

Chicks, and a Brooder—FREE

(See Combination Offer)



Start with a few hens and two or three cockerels, and gradually increase you. Inc. From your hatchings save the finest specimens for breeding purposes. Follow PHILLO instructions to the letter, and you will be astonished at the result. We have thousands and thousands of unsolicited testimonials from all parts of the country, reporting the gratifying and wonderful returns from the Philo System, and the "Cycle" Hatcher and Combined Brooder-Hatcher, that have been obtained by people who have carefully followed Philo instructions.

As many of these testimonials as we had room for are published in the Philo Books, with names, dates and addresses. You are at liberty to write to any of them. All are making money, all are delighted with results. Many are going into poultry raising as a business, some are taking it up as a side line, others simply to cut down living expenses. Often they report a 100 per cent. hatch, and 2-pound broilers in from 7 to 8 weeks is commonplace. You ought to read some of these letters and learn what others are doing—for positively you can do the same.

OUR SPECIAL COMBINATION OFFER, FOR 30 DAYS:

By an arrangement with Cycle Hatcher Co., we are enabled to make the following special offer. To any one who sends us, within 30 days, only \$3.00, we will send all of the following: One copy "A Little Poultry and A Living," One copy "Making Poultry Pay," One copy "Philo System of Progressive Poultry Keeping," One year's subscription to "Poultry Review," Complete instructions for building Philo Patented Coops, and rights to use them. **ONE BROODER CONTAINING THE 6 THOROUGHBRED CHICKS** (White Orpingtons or White Leghorns), together with Galvanized Troughs, and Cycle Chick Food enough to give them a good start. Mail your orders quickly and state when you wish us to make shipment of brooder and chicks. The books are sent immediately.

E. R. PHILO

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ELMIRA, N. Y.

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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70 cases white alfalfa sweet-clover honey, finest quality, 7 c. per lb. T. H. WAALE, Nampa, Ida.

Choice white-clover honey in new 60-lb. cans at \$6.00 per can, f. o. b. Waymart, Pa. Sample, 5 cts. J. D. HULL & BRO., Rt. 1, Honesdale, Pa.

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm. Kendaia, N. Y.

FOR SALE.—Buckwheat honey in 60-lb. cans and 160-lb. kegs, at 7½ cts. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—White and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Choice light-amber extracted honey —thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans. J. P. MOORE, Morgan, Ky.

Extracted honey, half clover and half buckwheat, in 60-lb. cans, two to case, 7½ cts. per lb.; 12 cases No. 2 white comb at \$2.50 per case; 18 cases of No. 3, mixed, at \$2.00 per case, 24 sections to the case; also have 150 ten-frame comb-honey supers for 4½ sections cheap.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN, 255 Greenwich St., New York.

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WANTED.—To exchange Root bee-supplies, either for money or honey. February cash discount, 2 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To lease for this year 200 colonies of bees—Italian or German brown: must be free from disease, and in good hives. S. T. LANCASTER, Tyson, Ida.

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WANTED.—Second-hand hives for cash. Address GLEANINGS, Medina, O. 3613

FOR SALE.—20 1½-story eight-frame Dovetailed hives, good as new (13 have combs on wire) for \$36. J. FREEMAN, 286 Park St., Chillicothe, O.

New crop alfalfa seed; 4 lbs. by mail, \$1.10; 50 to 100 lbs., 15 cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

Sweet-clover and alfalfa seed in any quantity. Write for prices. JOHN C. FROHLIGER, 257, 259 Market St., San Francisco, Cal. Berkeley, Cal.

When you wish better bees, feeders, Danz. hives and bee supplies; cooler, lighter smokers, guaranteed to suit or returnable, write F. DANZENBAKER, Norfolk, Va.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN Co., (Successor to J. M. Jenkins.) Penn. Miss.

WANTED.—All Southern Idaho bee-keepers to know they can get all kinds of bee-keepers' supplies at home. Write for catalog. I have my own factory. C. E. SHRIVER, 1623 Bannock St., Boise, Idaho.

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Soy beans, \$3.00 a bushel; sample, 10 cents. Bargains in dahlia and canna. Thornless raspberry, \$1.00 each. Circular free. JACOB MCQUEEN, Baltic, O.

Cheapest honey-package in existence. One-pound friction-top tin can. One cent each in lots of 100. Attractive 15-ounce jars at \$4.00 a gross. J. E. CRANE & SON, Middlebury, Vt.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla.), the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama. Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

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WANTED.—A position for the season of 1912 by a young man, single, to work with bees and chickens; has had three years' experience. No bad habits. WILL G. LENOIR, JR., Philadelphia, Tenn.

Bees and Queens

WANTED.—75 colonies of bees in modern hives, in Wisconsin or nearby States. Cash.
ERNEST MAHEN, Sheboygan Falls, Wis.

WANTED.—50 colonies to a carload of populous bees. Make lowest price on the same.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Full colonies of pure Italian bees in eight-frame dovetailed hives with Hoffman frames, at \$6.00 each. F. A. GRAY, Redwood Falls, Minn.

QUEENS.—Mott's strain of Italians and Carniolans. Ten-page list free. Plans for Introducing Queens, 15 cts.; How to Increase, 15 cts.; both, 25 cts.
E. E. MOTT, Glenwood, Mich.

If our bees winter as usual, we will sell 50 to 300 colonies, eight-frame hives, March to May. We are not selling out.
E. F. ATWATER,
Box 235, Meridian, Idaho.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Bees, 110 colonies, in eight-frame hives, run for comb honey, with 300 supers; good location; good climate. One five-acre tract all in fruit; close to good churches and schools.
P. R. RANDALL, Nampa, Idaho.

Our queens will be ready about May 15th, at \$1.00 each. We have both golden and three-banded Italians. C. W. PHELPS & SON, Dealers in beekeepers' supplies, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Early "Italian" (Frofalcon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens 50 cts. additional; select tested, \$1.00 extra.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

GOLDENS that are golden, gentle, hardy, and hustlers. Golden-to-tip queens, mated, \$1.00; select mated, \$1.50; select tested, \$3.00 to \$5.00. All mated \$1.50 queens replaced. Send for booklet. Nuclei and full colonies.
GEO. M. STEELE,
30 South 40th St., Philadelphia, Pa.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

QUEENS AND NUCLEI.—My strain of three-banded Italian bees are developed honey-gatherers. My entire time has been given to them during the last 12 years. Warranted queens, 75 cts. each.; \$8.00 per dozen; tested queens, \$1.00 each, \$10.50 per dozen. Three-frame nuclei with tested queen, \$3.50 each. Satisfaction guaranteed.
W. D. ACHORD,
Fitzpatrick, Bullock Co., Ala.

Real Estate

WANTED.—House, some land, 50 or more colonies bees. DAVENPORT, 2300 Lunt Ave., Chicago, Ill.

FOR SALE.—A good four-room house and barn on four lots in the city of Stanfield, Ore.; also 150 colonies of bees in a good locality for comb honey.
Address T. J. BARRINGER, Stanfield, Ore.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates.
F. H. LA BAUME,
Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

Help Wanted

WANTED.—Assistant apiarist. State age, experience, and wages. F. B. CAVANAGH, Hebron, Ind.

WANTED.—A thoroughly practical sober beeman to take charge of 200 colonies of bees on shares.
S. KLEIN, Salem, N. J.

WANTED.—One or two men who thoroughly understand the bee business for both comb and extracted honey and increase. Reference wanted.
RASMUS HOFF, Idaho Falls, Idaho.

WANTED.—Practical apiarist for season of 1912—possibly longer—for farm on Long Island Sound, near Oyster Bay; now 15 colonies; work in garden or poultry during spare time. State age, experience, and wages expected. R. E. FLINCH,
43 Exchange Place, New York City.

WANTED.—An experienced beekeeper to take charge of an apiary of 150 colonies to be run for comb honey. Address, stating wages wanted,
E. A. BALDWIN,
No. 626 North Delaware St., Independence, Mo.

Miscellaneous

FOR SALE.—5000 Lucretia dewberry-plants, selected stock, 35 cts. per dozen; \$1.25 per 100. Cash with order.
HENRY W. HARP, Steelmanville, N. J.

FOR SALE.—Light Sears auto truck, capacity 700 lbs.; almost brand-new; speed 25 miles; have no use for it. Will crate and ship anywhere. Price \$285.
C. R. FLORY, Lemoore, Cal.

We specialize in seeds of honey-producing plants. Write us for rates on sweet-clover and alfalfa seed in good quantity.
TRUMBULL SEED CO.,
257 Market St., San Francisco, Cal.

"A beekeeper can improve his bees without buying queens." So says Geo. B. Howe. Read his articles on queen-rearing, beginning in the March Review. Three months' trial, 15 cents.
THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00.
J. F. MICHAEL, Winchester, Ind.

White Indian Runner duck eggs. Great fertility.
O. WESTFELT, Halcyon, California.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Golden-laced Wyandottes and Indian Runner ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50.
DR. D. OSCAR MEAD, Pinckneyville, Ill.

Am booking orders for White Indian Runner duck eggs—true I. R. type, and white; no sports; handsome and hardy. Also eggs from both light fawn and pencilled strains. State which you want.
F. J. ARMSTRONG, Nevada, O.

Orders for eggs that will hatch, at 10 cts. each, for Indian Runner ducks, white and fawn; also for Buff Rock chickens; both standard stock, and from good laying strains. Write; want to tell you more about them, or place your order now.
J. RUDY ROEBUCK, Dalton, Ohio.

I have a flock of most beautiful Indian Runner ducks, correctly mated, which have proven beyond a doubt to be the twentieth-century egg-machines. I will book orders from now on, and ship when so ordered, 13 pure-white eggs for \$1.00. Satisfaction guaranteed or money refunded. This advertisement will be lived up to, to the letter.
ROBERT BIRD, Rt. 2, Pinckneyville, Ills.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.
C. O. YOST, Rt. 4, Winchester, Ind.

Poultry

For utility and beauty, Buttercups unlike others. Eggs in season. H. W. MEEKER, Earl, Toledo, O.

Barred Rock eggs—Bred-to-lay strain; \$1.00 per 15. Catalog free. J. W. DALL, Cambridge, Md.

R. C. R. I. Red eggs; fine laying strain; \$1.00 per 15; \$3.00 per 60. DAN'L JOHNSON, Cazenovia, N. Y.

FOR SALE.—Eggs of winter-laying strain of pure-bred S. C. R. I. Reds, \$1.50 per 15.
E. E. SMITH, Kitchen, Ohio.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs—\$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100.
C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock.
PIPER'S POULTRY PLANT, Elkville, Ill.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers.
C. M. MYERS, Winchester, Ind.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address
THE VAN DRUST FARMS, Cedar Grove, Wis.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free.
GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Baby chicks, 9 breeds. Prices from 9 cents up; 100,000 chicks hatched per year. Catalog free. Over 6000 laying hens. TAYLOR'S POULTRY YARDS,
(Sales Dept.) Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. W. O. ROUDABUSH, Hagerstown, Md.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

DUMARESQ SICILIAN BUTTERCUPS.—Some fine young stock from my blue-ribbon winners at Appalachian exposition and other shows. Testimonial of pullets laying in 124 days. Send for circular.
MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

Eggs from Houdans, Buff Rocks, Indian Games, Silver Wyandottes, Buff Leghorns, Rose C. B. Leghorns. Eggs \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Bronze turkey eggs, \$2.00 per 9; \$4.00 per 22.
DALE HART, Box 19, Broadwell, Ohio.

Pigeons and Pet Stock

FOR SALE.—Fifty pure-bred homer pigeons—fifteen mated pairs.
WILL G. LENOIR, JR.,
Philadelphia, Tenn.

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty; 17 years' experience. Illustrated matter free. PROVIDENCE SQUAB CO., Providence, R. I.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business: June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

By OUR BUSINESS MANAGER

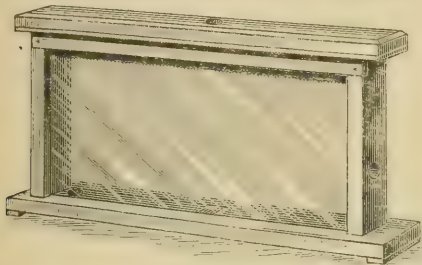
We have about two tons of choice Michigan and New York State amber extracted honey in five-gallon cans. The largest part of the honey was gathered from clover, but we presume many of the producers were busy with other work so did not get it extracted until after the fall flows came on, so there is enough dark honey mixed with this to grade it amber. We offer it put up in the original packages of two five-gallon cans to the case, at 8½ cents per lb., delivered in good condition on board the cars at Medina. We seldom have a lot of honey as good as the above at such a low price. In ordering mention lot No. 107.

SWEET-CLOVER SEED.

We are obliged to make a further advance in the price of hulled white-sweet-clover seed. We are sold out for the time being; but a new importation is expected in New York March 18. The importer has raised the price on us, and we in turn must mark up our price to the following: 1 lb., 27 cts.; 10 lbs. at 24; 25 lbs. at 23; 100 lbs. at 22, subject to further changes in the market, and subject to our being able to secure the seed. The demand is greater than ever before. Of the unhulled biennial yellow we have only a few hundred pounds; and when that is gone we can not obtain more until a new crop is gathered. We still have a good stock of unhulled white and hulled annual yellow.

ONE-FRAME OBSERVATION HIVES.

In cleaning up some stock we find quite a number of the one-frame observation hives which we



used to sell years ago. The style is shown in the illustration above. They are made to take glass 9 by 19 each side, and no shutters are provided to cover the glass. We offer them in flat, without glass, at 35 cents each; put up and finished with glass, \$1.25 each.

MAPLE SYRUP AND SYRUP.

Owing to the heavy demand last year for our Ohio rock-maple syrup and sugar we have decided to book orders in advance of the crop at the following prices:

Single one-gallon can or one case of six one-gallon cans, at \$1.25 per gallon.

Two to ten cases of six one-gallon cans to case, at \$1.15 per gallon.

Larger quantities, 75 to 100 gallons, at \$1.10 per gallon.

For a number of years we have not been able to get sufficient quantities of maple sugar to meet the demand. We hope this year to obtain a larger supply. We quote as follows:

1 to 25 lbs. best rock-maple sugar at 15 cts. per lb.
26 to 50 lbs. ditto at 14 cts.
51 to 250 lbs. ditto at 13 cts.
251 to 1000 lbs. ditto at 12 cts.

Our inspection of sugar and syrup as they come in from the producers will be more rigid than ever, as our requirements are based upon U. S. standard regarding the color, flavor, and purity of both sugar and syrup. Let us book your order now, as the first run is considered by all to be the best.

NEW BOOKLET OF HONEY RECIPES.

Booklet No. 31 of our Beekeepers' Ten-cent Library, entitled "The Use of Honey in Cooking," is a

collection of about 100 tested recipes for making cakes, cookies, breads, etc., in which honey is used. In many ways this is the most complete and interesting honey-recipe book which has ever been prepared for wide distribution. The recipes were collected from beekeepers and good cooks everywhere, and carefully tested under our personal supervision during the past year. Only those that have given entirely satisfactory results are included in this collection.

By way of illustration, "The Use of Honey in Cooking" has as a front cover a reproduction of a capped comb, and on the five following right-hand pages, opposite descriptive reading-matter, these illustrations appear in order: "The same comb that we show on cover with the cappings shaved off with a sharp knife, exposing the dripping honey in the cells;" "The uncapped combs being lowered into a honey-extractor;" "Honey-extractor in operation, showing how the combs are whirled rapidly and the honey thrown out of the cells by centrifugal force against the inside of the can;" "Drawing off the honey through the gate at the bottom of the extractor;" "The comb after being taken from the extractor, showing the cells are undisturbed and the comb as good as new, and ready to be filled again by the bees." Thus it will be seen that the complete process of the making of extracted honey is pictorially explained. This is a result which has long been sought, to correct the popular impression as to the manufacture of extracted honey by some artificial process.

Under the heading of "Food Value of Honey" an introductory of seven or eight pages appears, with a discussion of the subjects, "What is Honey?" "Different Flavors of Honey;" "Why Use Honey in Cooking?" "Where to Keep Honey;" "Honey Recipes;" "Caution Regarding the Use of Honey in Cooking."

The recipes are set in ten-point type of plain and readable face, and the booklet is printed on paper of very fine quality, with paper cover. There are 64 pages in all. While there will be a great demand for single copies of this booklet from our readers and friends throughout the world at the price of 10 cents per copy, we anticipate a still larger demand from beekeepers, who will appreciate the advantage of using advertising matter of this high class in their honey-selling campaigns. We have printed copies of "The Use of Honey in Cooking" in considerable quantities, and the back cover page has been left blank so that the advertisement of the local dealer or honey-distributor may be placed thereon. It is our desire to offer these booklets for sale in quantities, as desired, at the following prices, which include the printing of an advertisement or price list, with name and address upon the back cover. No other address will be given in your booklet.

100 copies of "The Use of Honey in Cooking," printed with your advertisement, - - -	\$4.50
150 ditto, - - - - -	6.00
200 ditto, - - - - -	7.75
250 ditto, - - - - -	9.25
500 ditto, - - - - -	17.25
1000 ditto, - - - - -	25.00

Quotations on larger quantities upon request.

Special Notices

By A. I. ROOT

"A NATION OF BEGGARS."

I want every reader of GLEANINGS who is not already taking the *Practical Farmer*, Philadelphia, to send a post card asking for their issue of Feb. 24, as a sample copy; then read Terry's article, "A Nation of Beggars." The "tipping" business is being done away with, along with other "swindles," and it is high time the begging business in church and out of church was stopped. Terry says people are staying away from church because they can not stand this everlasting urging to give for this, that, and the other. In another column he tells us why it "costs so much to live," nowadays. One reason is because we continue to pay \$9.00 a bushel for corn ("toasted cornflakes") when the corn in our cribs is worth only 65 cts. a bushel. We not only lose health, but help to make millionaires of the men who stack up their foods in paper boxes in our groceries.

My Finest Car

By R. E. Olds, Designer

Reo the Fifth—despite its price—marks the best I know. It is My Farewell Car, based on 25 years of experience. And no man will ever, in my estimation, build a much better car.

My Limit

In 25 years tens of thousands of men have come to have faith in me.

I say to them and to others that this Farewell Car shows the utmost of which I am capable.

In all the 18 months which I spent on this car the selling price was never considered.

Reo the Fifth is my finest creation. It is now the only car built in this mammoth plant.

So all my past prestige, and all this concern's future, are at stake on this single car.

The Standard Car

I don't mean that men can't build more costly

cars—heavier, larger, more powerful cars. I have built them myself—up to 6-cylinder sixties.

But most men who know have come to seek moderation. They have proved that excesses in size, weight and power are useless and immensely expensive.

The popular car of the future will be the 30 to 35-horsepower, four - cylinder car. So I have adopted this standard type for My Farewell Car.

My claim is this:

It is utterly impossible to use better materials, better workmanship or devices than I use in this car.

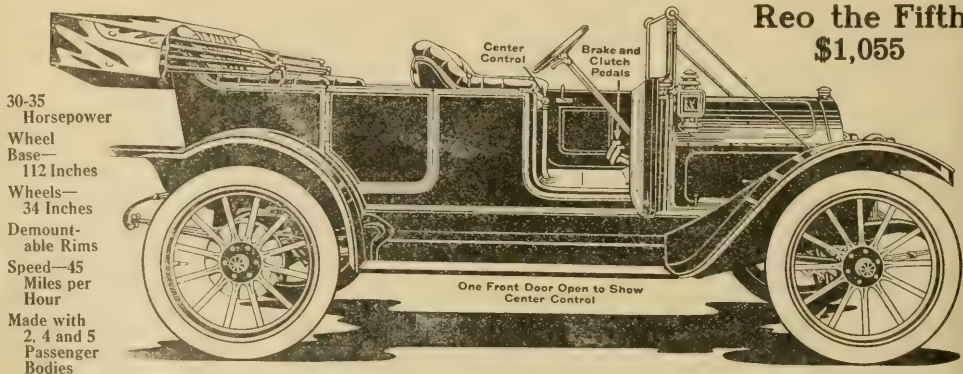
It will never be possible, at any price, to get more of real worth in a car.

Price Not Fixed

The present price—\$1,055—is no measure at all of the worth of this car. My own idea is that the price is impossible.

It is based on an output probably beyond our powers. It is based on a very low cost for materials—much lower than for years. It is based on ideals of utter efficiency which even this plant can't reach.

So this price is not fixed. All our contracts with dealers provide for advance. Reo the Fifth should not be judged by this altruistic price. Judge it solely by the merits of the car.



Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas-tank, and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$20 EXTRA.

Where It Excels

My advantage in designing lies in 25 years of experience. I have built tens of thousands of cars, in 24 models, and I know all the possible troubles.

My axles and driving shafts are much larger than necessary, and I build them of nickel steel.

My connections are built of Vanadium steel. And I prove every alloy by analysis.

My differential was designed for 45 horsepower. My gears are tested in a crushing machine of 50 tons' capacity.

My carburetor is doubly heated, to deal with poor gasoline. The magneto I use must pass a radical test.

Unusual Care

My excess of caution, my big margins of safety, result from decades of experience. I am too old in this business to take any chances.

I carry inspection to the extreme. I insist on repeated tests.

I use more Roller Bearings than were ever before

employed in this type of car. There are only three ball bearings in Reo the Fifth, and two are in the fan.

So with every feature. Each is the highest, the costliest type known to motor car engineering.

No Petty Economies

The wheel base is long, the wheels are large, the car is over-tired.

The body finish consists of 17 coats. Even the engine is nickel trimmed.

The upholstery is deep—made of genuine leather—filled with genuine hair.

The design of the car shows the last touch of up-to-dateness.

Every detail of this car breathes of utter perfection.

Center Control No Side Levers No Reaching

This car also embodies my new center control. The gear shifting is done by this center cane-handle

—by a slight, easy motion in each of four directions.

There are no side levers to block either front door. Both of the brakes are operated by foot pedals. One pedal also operates the clutch.

Thus the driver may sit, as he should sit, on the left hand side. He is next to the cars which he passes. He is on the up side of the road. Heretofore this was possible in electric cars only.

This simple form of control—the best ever invented—is exclusive to Reo the Fifth. 

Ask for the Book

Reo the Fifth is the most interesting car of the season. It comes pretty close to finality.

It is My Farewell Car, and the price is sensational. It is a car that you should know.

Ask for our catalog, giving all details and picturing all the body designs. When we mail the book we will tell you where to see the car. Address,

R. M. Owen & Co., General Sales Agents for Reo Motor Car Co., Lansing, Mich.

Canadian Factory, St. Catharines, Ont.



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

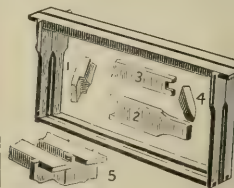
Chicago, 213-231 Institute Place
Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.

Washington, 1100 Maryland Ave., S.W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



Cleanings in Bee Culture



VOL. XL. APRIL 1, 1912, NO. 7.

Have You Robbed Your Farm?

A True Story With a Moral

Some years ago a young man bought a farm on the edge of an old peat bog in Illinois. The soil was evidently very rich, and the first year yielded a big crop of corn—85 bushels per acre. The young man was happy, took unto himself a wife, built a little home on a little knoll on the farm and settled down. The next year he had another bumper crop on the farm and a pair of twin boys in the home, and he was happier than ever.

Well, he continued to live and farm this place for twenty years, and worked hard and faithfully, but in that whole time never raised another good crop, and he couldn't understand it, especially since the first crops were so fine.

One day a soil specialist came along, examined the soil and found it lacking in phosphorus. The first two crops had used up all there was, and more phosphorus had to be added before another crop could be harvested from this soil.

When the specialist told this to the farmer, and that for a small sum per acre he could have added the phosphorus and raised a bumper crop every year, he just broke down and cried. He said: "Just think! I have lived here all these years, a very poor man, and raised my family in poverty and ignorance, all the time working hard, without success, and if I had only known what you tell me I would be rich and my children could have had an education and social advantages which have been denied them."

Every farmer should know the kind of soil he is farming; should learn how to avoid robbing it; should learn how to feed it; so that instead of getting poorer every year his soil will be getting continually better.

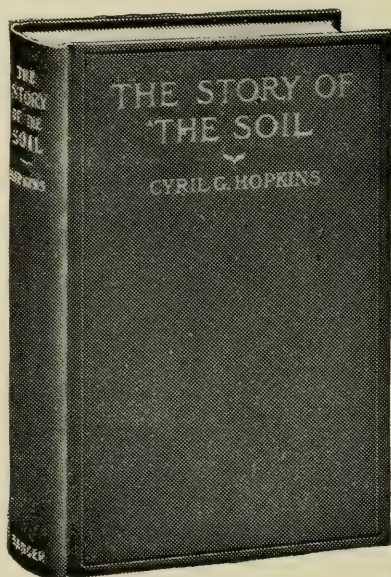
You can do it, Mr. Farmer, by reading such books as "The Story of the Soil."

Cyril G. Hopkins, the Author of "The Story of the Soil," is acknowledged authority on Soil Culture of the University of Illinois, author of "Soil Fertility and Permanent Agriculture," etc.

Every scientific farmer and every student of the soil, and everybody who wants to know how to make things grow to perfection should read Mr. Hopkins' Masterpiece, a new book, entitled "The Story of the Soil," a handsome volume, elegantly bound in cloth, containing 350 pages, size 5x7½ inches, illustrated—sells for \$1.50.

GLEANINGS specially desires that every one of its subscribers read this book, and become familiar with the knowledge of the soil and suggestions of this great man.

We have arranged with the publishers to get this book for you at factory cost, and will send it to you by mail, postpaid, and a year's subscription to GLEANINGS both for \$1.50. Address



THE A. I. ROOT CO.,

Medina, Ohio

"falcon" Foundation

Manufactured only in the factory of and by the exclusive process of the W. T. Falconer Mfg. Co., Falconer, N. Y.

More easily worked, more perfectly made, "**falcon**" Foundation gives best results. We have made this famous brand for a third of a century, and its reliability to give uniform and absolute satisfaction has long since been established.

Send for circular and samples of "**falcon**" Foundation; also Dewey Foundation Fastener.

In our own factory we make hives, supers, sections, frames, honey-boards, all inside fixtures for hives, shipping-cases, with full line of smokers, honey and wax extractors, honey tins and glass; books and bees and queens. If you want the best bee supplies, hives that will go together with only a hammer, and last for years, use

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In the extreme South—J. J. Wilder, Cordele, Ga., and Bradentown, Fla.

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In the Southwest—J. W. Reid, Uvalde, Uvalde County, Texas.

Western Beekeepers

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At the railroad distributing center—C. C. Clemons Bee Supply Co., 130 Grand Avenue, Kansas City, Mo.

Middle-State Beekeepers

On the western border—C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.

In the center—W. T. Falconer Mfg. Co., 117 No. Jefferson St., Chicago, Ill.

On the southern border—Fred W. Muth Co., 51 Walnut St., Cincinnati, O.

On the eastern border—W. T. Falconer Mfg. Co., Falconer, N. Y.

Eastern States

New York—Deroy Taylor, Lyons. Hudson Shaver & Sons, Perch River. Charles Stewart, Johnstown. W. T. Falconer, Mfg. Co., Falconer.

Pennsylvania—Northwestern border; W. T. Falconer Mfg. Co., Falconer, N. Y. Western; A. M. Applegate, Reynoldsville. Southeastern; J. R. Rambo, Collingdale.

Foreign Beekeepers

In nearly every country we have an established distributor and can supply the wants of foreign beekeepers everywhere. In such localities as we are not represented, are always glad to take up the matter with those desiring to handle goods.

There are other dealers in many localities. Send us a list of 1912 requirements for quotation from our nearest dealer, or delivered if you desire.

RED CATALOG sent *postpaid*.

We have many interesting and instructive circulars including that concise beginners treatise, Simplified Beekeeping, which we gladly mail postpaid upon request.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, March 18. **BLAKE-LEE CO.**

DENVER.—We have no comb honey to quote. Our market is entirely cleaned up. Our jobbing quotations on white extracted are 9 cts.; light amber, 8; strained, 6¾ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N.
Denver, March 20. **F. Rauchfuss, Manager.**

CINCINNATI.—The market on comb honey is about cleaned up. No. 1 white is selling in a jobbing way at \$3.65 per case, or \$4.00 retail. Light-amber extracted in barrels brings 7; in cans, 7½ to 8; white extracted in 60-lb. cans, 10. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, March 22. **C. H. W. WEBER & Co.**

ZANESVILLE.—The market is quiet, with supply fully equal to the demand. White comb of best quality brings 20 cts. wholesale; extracted in 60-lb. cans, 11 to 12. The principal demand for extracted at this time is in 1-lb. and 6-oz. glass packages, which are quoted at \$2.25 and 90 cents per dozen respectively. For beeswax, producers are offered 29 cts. in cash or 31 in exchange for bee supplies.

Zanesville, O., March 21. **E. W. PEIRCE.**

LIVERPOOL.—Since our last report our markets for honey and beeswax have continued firm, with business restricted by small supplies. Retail sales of pile 1 Chilean honey have been made at \$7.92, and pile 2 at \$6.84. The stock is now almost cleared out. There is a fair quantity of Californian to be had at \$10.08 to \$10.80, and 65 cases have been sold the last few days within these limits. Stocks of other descriptions have sold at different quotations as follows: Haitian, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilean, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$12.92. There is very little Chilean beeswax offering; and we think that, by the end of next month, the stock will be exhausted. In the mean time, until the new Chilean wax comes in, about May, Haiti should find a good market. Sales, 25 bags of Chilean at \$36.88 to \$37.78. Quotations for other descriptions are as follows: African, \$32.16 to \$34.48; Jamaican, \$37.72; West Indian, \$32.64 to \$36.28.

Liverpool, March 15. **TAYLOR & Co.**

Continued on page 5.

Mr. New Beeman.—"Well, well, nailing up your beehives already? Aren't you rather early?"

Mr. Successful Beeman.—"Now, then, that is just where so many make their mistake: they wait until the last moment and then rush and buy anything they can get. You have often asked me the secret of my successful beekeeping. Well, listen! I order early, buy the **best beehives and supplies** on the market, nail them up, and then I am ready for the bees. All my supplies come from

THE FRED W. MUTH CO.

"The Busy Bee Men."
Send for catalog.

51 Walnut Street.

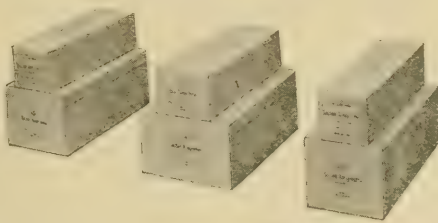
Cincinnati, Ohio.

AS A SHIPPING POINT CINCINNATI CAN NOT BE EXCELLED

for this section of the country. We are located on the great trunk lines for points south of us, and orders received from this territory are shipped out at once on direct routes so that customers are assured of prompt service and a minimum charge for transportation.

Coupled with the advantages offered by these resources is the service we maintain for our patrons. At this season of the year our stocks are complete, and we are making extra efforts to handle orders with the greatest dispatch possible, so that there may be absolutely no delays in filling hurry orders. Our long experience in the supply business enables us to anticipate your wants to such an extent that we have included your order with ours to the factory, so we are simply waiting your instructions to get them started to you.

For the small beekeeper, and those who have a part of the supplies they will need for the coming season, we have goods put up in small original packages. For instance, there is foundation of all grades packed at the factory in one, two, three, four, and five pound cartons. Sections of all standard sizes in cartons of 100, 250, and boxes of 500.



These small packages enable the beekeeper to buy in quantities just suited to his needs, with the assurance that the goods will reach him in the best condition possible, and with no loss on account of a broken package.

If you have lost some bees the past winter, don't be discouraged, but prepare to make the very most of those you have left, or to replenish your hives, for the coming season is bound to be a good one; and if there has been quite a loss in your vicinity there will be all the more nectar for your bees to gather. Be sure that the season finds you prepared to give them plenty of room in which to store the harvest when it comes.

If you haven't had your catalog from us, there is one ready to mail if you will give us your present address.

C. H. W. Weber & Co.
2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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H. H. ROOT

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Unoccupied Bee Range ... 80 Miles Long

I am situated at the junction of the Gila and San Pedro Rivers, in Central Arizona, and for 80 miles south up the San Pedro River is unoccupied bee range of Mesquite, etc. Any three miles of the San Pedro Valley will support 150 colonies or more. Any location would be good for raising early queens. I have for sale, located three miles from a railroad, 40 acres of unimproved fruit land and 110 colonies of bees in Langstroth hives that I run for extracted honey; also good extracting outfit. I sell all my honey at a mining town four miles from home. I have lots of calls for comb honey. Will sell at a very low figure. If you want to buy, write to

C. K. Wilcox
Winkelman, Arizona

Honey Markets, continued from page 2.

CHICAGO.—The sale of honey so far this month has been only moderate; and while the stocks were light in quantity at the beginning of the season, they are rather heavy at the close. This may be attributed in part to the cry that went out last autumn that honey was very scarce, and would be high in price, thus making the more or less steady consumers feel that they could not afford to buy of the crop of 1911. Prices are unchanged from our last quotation, but the volume of sales is less. Beeswax is taken readily at 30 to 32.

Chicago, March 18.

R. A. BURNETT & Co.

NEW YORK.—We have practically nothing new to report. The market remains in about the same condition. Comb honey is well cleaned up, and what few small lots arrive find ready sale at former prices. Extracted is not moving very fast. There is a plentiful supply of all grades excepting California water-white and white sage, which is pretty well cleaned up. Prices remain about the same as in our former report; but in quantity lots even these prices have to be shaded in order to effect sales. Beeswax is steady at 30 to 31.

New York, March 18. HILDRETH & SEGELKIN.

ST. LOUIS.—Since our report of March 4 our honey market has remained unchanged. The stocks of comb honey are light, and the supply of extracted honey is abundant but not burdensome. We quote fancy white comb honey at 17 cts.; No. 1, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light-amber California brings 8½ to 9; Southern light amber, 8 to 8½ in five-gallon cans; Southern in barrels, 7 to 7½ for light amber. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, March 18.

(Organized 1870)

National Beekeepers' Association

Objects

The objects of this Association shall be to aid its members in the business of beekeeping; to help in the sale of their honey and beeswax; and to promote the interests of beekeepers in any other direction decided upon by the Board of Directors.

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President—George W. York, Chicago, Ill.
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Annual Membership dues \$1.50, one-third (50 cents) of which goes to the local branch where such branch is organized.

Send dues to the Secretary, E. B. Tyrrell.

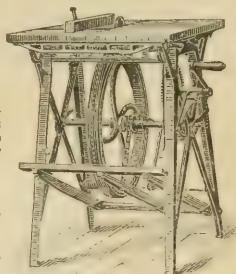
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This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



APIARIAN SUPPLIES AND BEES.

Before placing your order let us quote you on what you need. A very liberal discount on early orders. Catalogue free. New York State amber honey 8½ cents per lb.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

Bee-keeper's Supplies

Sold in Central Michigan at let-live prices. Send for my 1912 prices and be convinced.

W. D. SOPER,

Jackson, Mich.

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, March 18.

WALTER S. POWDER.

CINCINNATI.—There is a fair demand for both extracted and comb honey. We are selling the very best grade of comb honey at \$3.75 to \$4.00 a case; while for fancy extracted we are getting 9 to 11 cts., according to quality and quantity purchased. Amber honey in barrels is selling at 6 to 7½ cts. For strictly choice bright-yellow beeswax we are paying 30 cts. per lb. delivered here, and 1 to 2 cts. less for darker grades.

Cincinnati, March 23. THE FRED. J. W. MUTH CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

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A. L. BOYDEN, Advertising Manager

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"How to Make Money in Bees"

This book is for beginners. It tells how to get profit and pleasure from this fascinating occupation. It tells you how to select the bees, gives hints on swarming, feeding, wintering, and caring for the bees, their diseases, captivating habits, etc. It also suggests how to select proper equipment.

"Blanke's Bee Book." This book will interest both beginners and old beekeepers, large and small. It contains a complete description, with price list of our unrivaled line of hives, smokers, supers, frames, sections, machinery, and countless other equipments, besides containing useful information for the apary owner. The list of questions and answers in the back of the book will prove of great benefit to beginners.

One or both books FREE.

Utilize valuable time by writing now.

BLANKE MFG. & SUPPLY CO.

Successors to Blanke & Hawk Supply Co.

Blanke Bldg. St. Louis, Mo.

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Patent Practice in Patent
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Patent Counsel of
The A. I. Root Co

The Crisis

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No less is this a crisis in the beekeeper's experience; for his action or inaction now in caring for his bees, ordering needed supplies, and preparing his equipment for the harvest, will determine to a certainty the measure of his success or failure.

Seasonable goods of all kinds—feeders, veils, gloves, smokers, hives, sections, foundation—any thing and every thing pertaining to bees—are here at OHIO'S BEE-SUPPLY CENTER immediately subject to your order. If your name is on our list of customers, you have already received the 1912 catalog or will receive one in a few days. An early order from you will be appreciated. Write, anyhow. Your letters are always welcome.

If you are not already a customer a large illustrated catalog of bee-supplies and specialties will be mailed you on request.

EDMUND W. PEIRCE

136 West Main St., Zanesville, Ohio.

Baby Chicks

Nice big strong vigorous chicks is what we ship. Safe arrival

guaranteed. Price 8 to 15 cts. each; 100,000 for sale this season. Catalog free.

JOS. A. BLUM & CO., Dept. 3, Chatfield, Ohio.

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Many readers say a single number is worth a dollar, but we will send you one free, and tell you how to get a 300 page book on fruit growing free of charge. **Write today.**

THE FRUIT-GROWER, Box 108, St. Joseph, Missouri

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Every Bee-keeper Should Have Both Book and Bee-Paper.

DOO LittLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now before the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1912, for only \$1.00, is certainly a big bargain for you. Send the \$1.00 now, and we will begin your subscription with January 1, 1912, and mail you the book. Sample copy of the Bee Journal free. Address



GEORGE W. YORK & CO.,

117 No. Jefferson St., Chicago, Ill.

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We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

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Syracuse, N. Y.

"Griggs Saves You Freight."

Toledo

Is the only city located on both water and rail; shipping can be done to all north shores by either, but all those on boat lines can save freight by having their goods come by boat, especially those in Northern Michigan.

Send us list of goods needed, and let us quote you our special prices on quantity orders.

Special Club Bargain on Bee, Fruit, Poultry, and farming papers. Ask for it.

Our Stock of Root's Bee Supplies is the most complete of any.

Special prices on Poultry Feeds, Shells, Grit, Charcoal, etc.
Beeswax wanted.

Send for our 1912 Catalog.

S. J. Griggs & Co.

Erie St., near Monroe, Toledo, O.

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources \$1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

LEWIS BEEWARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY.

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.



Established 1885

We carry an up-to-date
line of

BEEKEEPERS' Supplies

Send for our 64-page catalog that has been greatly enlarged and many new featured added. The fifty questions that are asked for so often by mail are answered on page 60, and will be most valuable to the beginner. Also some information is given on foul brood. We carry a full line of hives, sections, and all supplies commonly needed in an apiary. Our shipping facilities are good—we can fill your orders promptly.

Do not fail to write us or drop us card for our catalog, FREE. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co.
High Hill, Montg. Co., Mo.

GOLDEN ITALIAN QUEENS

\$1.00 each; six for \$5.00; twelve for \$9.00—
untested and warranted.
J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

Prices: Tested, \$1.25; 5 for \$5.00; Breeders, each, \$5.00. Address

W. H. Laws, Beeville, Texas.

FRUIT-GROWING,

FARMING, GARDENING, and NUT-GROWING in the South. THE SOUTHERN FRUIT GROWER tells all about it. Price 50 cents per year. Sample copy free. Address

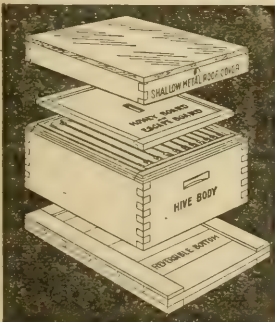
THE SOUTHERN FRUIT GROWER,
Dept. B. C. Chattanooga, Tennessee.

Boston New England

Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. Send for catalog.

H. H. JEPSON
182 Friend Street BOSTON, MASS.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has 3/4 material in the outer wall, and is not cheaply made of 1/2 material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

A. G. WOODMAN CO., Grand Rapids, Mich.

Bingham Smokers



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.
Doctor, 3 1/2-inch, each, .85; mail, \$1.10.
Conqueror, 3-inch, each, .75; mail, \$1.00.
Little Wonder, 2-inch, each, .50; mail, .65.
Honey-knife, .70; mail, .80.
Manufactured only by

BINGHAM
SELF-CLEANING
BEE SMOKER



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

Swarming Time

Is not far off, and it would be well not to wait till the last minute, even though you do know where you can get the goods quick. I am supplying the entire needs of many successful beekeepers, and have been for years. Let me convince you that I can do the same for you. New goods from the Root factory are constantly being added to my stock, and I am shipping out the goods at the factory schedule of prices. If I have any displeased patrons I do not know about it, and your good will is a matter of considerable concern to me. My plea for your business is based on a straight business proposition—a saving to you in dollars and cents, finest and most accurate goods that can be produced, and prompt service.

Walter S. Pouder, dear Sir:—You may ship five more hives, same as last lot. The other five are now assembled and painted, and I am very proud of them. Thanking you for your prompt service,
Tipton, Ind.

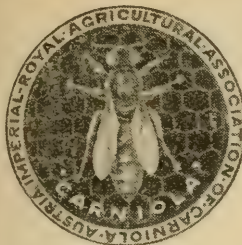
JOHN D. SMITH, JR.

When you have your beeswax ready for shipment, please remember me and I will pay highest market price in cash or trade at any time

My new catalog contains much that is valuable to any one interested in bees, and it is free. In any event let me hear from you.

WALTER S. POUDER, Indianapolis, Ind.

859 Massachusetts Ave.



Carniolan Alpine Queens —GREY WORKERS—

Shipped to all Parts
of the World.

Select tested, March.
April, May, \$5.00; June,
July, August, \$3.50.

Select untested, June
July, August, \$2.00.

Mailed, postage free. Safe arrival guaranteed. Dead
queens replaced if returned in 24 hours. Intern. money-
order with every order. References respecting financial
and commercial responsibility of the undersigned Ass'n
can be had at every Imp. and Royal Austro-Hungarian
Consulate in the U. S. and Canada. Write for our booklet
Orders for nuclei and hives can not be filled until every
thing concerning this line of business is arranged properly.
Remit money order and write English to

The Imperial-Royal Agricultural Association. Ljubljana,
Carniola. Krain, Austria

STRAWBERRY Plants

Send \$2.50 for 1000 plants, Lady Thompson, Klon-
dyke, Aroma, or Gandy. Also grapevines and fruit
trees 10 cents each. Order now.

JOHN LIGHTFOOT,

R. No. 8.

East Chattanooga, Tenn.

New England Beekeepers Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.

Providence, R. I.



CARNIOLANS SUPERIOR WINTERERS

Have your bees wintered satisfactorily! Are many
of them weak? Would you like your bees to come
through in better condition? Carniolans stand the
severe winters of our Northern States the best. Ask for our
paper, "Superiority of the Carniolan Bee," telling about their
wintering qualities. It's free.

Albert G. Hann, Scientific Queen-breeder, Pittstown, N. J.

White WYANDOTTES

Breeding Stock for Sale. Males, \$3.00 each and
up; Females, \$2.00 each and up.

We have been breeding White Wyandottes for
seventeen years, and have over 500 to select from.

Baby Chicks in Season, 15 cents Each

EGGS \$2.00 PER SETTING OF 15
\$8.00 PER HUNDRED

Orchard Heights Farm, Oaklawn, Rhode Island
P. T. BRÉESE, Manager

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

PUBLICATIONS ON BEE CULTURE

Please use coupon below, checking
the numbers of items wanted.

The pamphlets and booklets listed be-
low are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
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- 9 **How to Keep Bees.** A book of 298 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
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- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$.....
to cover the cost.

1	2	3	4	8	9	10	11	12	15
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Name

Street Address or R. F. D.....

Town

G.B.C. 4-1-12

State.....

WITH OUR READERS AND ADVERTISERS

BUYING QUEENS.

Owing to a number of letters which have reached the advertising department in years past regarding subscribers' transactions with queen-breeders, we think it not out of place here to give our readers some idea of the difficulties under which queen-breeders work, and an idea as to what might reasonably be expected from the different classes of breeders.



In the first place, any breeder's ability to fill early orders promptly depends altogether upon weather conditions during the early spring months. Cold winds and unsettled weather make it impossible to rear quantities of queens successfully, and some of our best breeders are often two or three weeks late in getting started in spite of the most carefully laid plans. After breeding is well under way, a buyer may reasonably expect very prompt service from the older and larger breeders. Small breeders are sometimes handicapped by various conditions which will be explained later.



Most of our readers will recognize at a glance the older breeders, about whom there need be no question as to quality of stock or ability to fill orders promptly. The very fact that these breeders have advertised to a greater or less degree year after year establishes their reputation for fair dealing. It takes time and experience to develop the queen-rearing business to the stage where the breeder himself can be absolutely sure of the quality of his stock and his ability to handle orders satisfactorily.

On the other hand, new breeders and advertisers are constantly entering the fields who are worthy of attention; and oftentimes, if the buyer is willing to take a little risk as to quality of stock and ability to fill orders promptly, he may get something really good at a lower price. The queen-rearing business is, however, very uncertain for the small breeder, and he will often find himself embarrassed by lack of stock and inability to fill orders promptly in the rush season. This may be due to a variety of reasons. A breeder who has had some success in an amateur way sometimes decides to enter the commercial field—that complete equipment and rather larger facilities are necessary to handle even a small business successfully. Orders come in very rapidly sometimes during the rush season, and a breeder is caught short before he realizes that his equipment is too small to produce the results necessary to supply his trade satisfactorily. A sudden change in the weather may kill the larvæ; cold winds may prevent mating, with a consequent loss of virgins; a sudden dearth of honey may cause a lack of desirable drones. Lacking the experience necessary to guard against those conditions, salvation lies in promptly returning remittances sent, with a frank statement of the circumstances; for no beekeeper can afford to wait for queens in the height of the season; and, in our opinion, it is always well for the buyer to ask for a prompt return of the remittance unless the order can be filled at once. This obviates misunderstandings and delays.



We take pains not to admit advertisements of breeders until they have given us some information regarding their equipment and methods, and an assurance that they will fill orders promptly. Having done this we must ask our readers to be equally discriminating in sending in their orders.

Satisfactory Service and The Best Bee Supplies.

That is what we give our customers, and what we can give you if you will give us the chance. We keep a large and complete stock of Root's goods constantly on hand, and our largely increased facilities for handling goods make it possible to give every order the most prompt and careful attention. San Antonio is the shipping center of this section of the country. We can save time and freight, and get goods to you in better condition than to send to some more remote or less centrally located point. We base our claim for service, and the quality of our goods, not alone on what we think we can give you, but what our customers have had from us for years past. Just recently Mr. J. A. Simmons, of Sabinal, wrote us as follows:

As I have been using your supplies since March, 1903, I do not hesitate to commend you and the supplies you handle. Mistakes, a few have been made, but were cheerfully corrected. As I have nearly 500 colonies, I should know.

We have many more letters with equally good reports.

Catalog on request, also quotations made on large lists.

Weed Process Foundation.

We are running our new plant day and night and are able to supply the very best grade of foundation very promptly, and at prices which we are sure will please you. A customer writing a day or two ago about this says:

The foundation you worked for me has been received. Your work is perfect, and in those cartons it is so convenient for the retail trade.

We can use your wax at current prices if you have more than you want worked into foundation for this season's use.

Queens.

Untested, April 10 to May 10, \$1.00 each. Tested, March 1 to April 10, \$1.25 each. Selected tested, March 1 to April 10, \$2.00 each. Breeding queens, the very best, April 1 to December 1, \$5.00.

No-drip Shipping Cases.

A big stock of these on hand at low prices. Write for particulars. It will pay you to get our prices.

Topperwein & Mayfield,

Corner Nolan and Cherry Sts.

San Antonio, Texas.

I have for sale the

Three-banded Italians and the Goldens

at the following prices: Untested of either strain, 90 cts. each; 12 for \$9.00; \$65.00 for 100. Tested, for either strain, \$1.00 each, or 12 for \$10.00; \$75.00 for 100.

I have some fine three-banded breeders for \$5.00 each.

Plenty of Queens ready to Mail Now.

I guarantee satisfaction of all queens purchased of me.

I use the best-known methods of rearing queens.

I have high-grade breeding queens of The A. I. Root strain and other prominent breeders.

I have won several first prizes on my bees, and took both of the first on the three bands and goldens at Dallas State Fair at Dallas, Texas, in 1911.

B. M. Caraway

Mathis, Texas

CONTAINERS

. . . FOR . . .

Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . . Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

Get full information,
prices, and samples.

The A. I. Root Company

Medina, Ohio

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

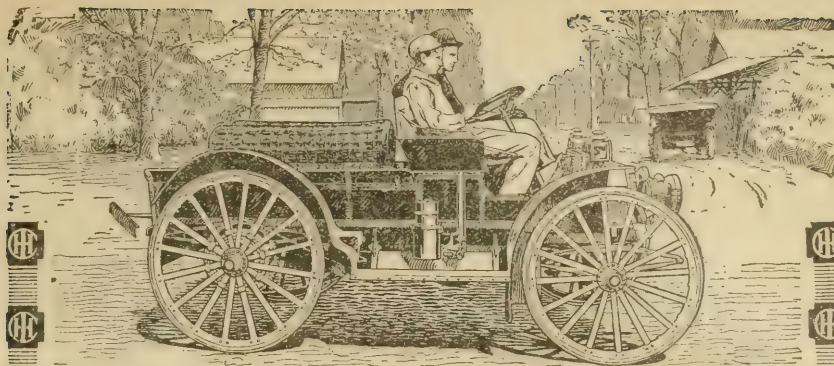
It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

Hamilton, Illinois



An International Auto Wagon Will Earn Its Keep on Your Farm

IT is in the seasons when your horses are all needed in the field or when the weather is most unfavorable for driving, that the International auto wagon shows its real worth. It is always ready to take the milk or cream to the creamery, deliver produce and fruit, bring your purchases from town, or take the children to school.

With it you can oversee the farm, do all light hauling, visit any friend within thirty miles, take the family driving or to church.

International Auto Wagons

are sturdy, every-day workers. The frame, axles and wheels are strong enough to carry any load the wagon should hold, over any road. The 20-H. P engine has power enough to meet any road emergency. The transmission gives two forward speeds and reverse, with no danger of stripping gears. The brakes are powerful.

The International auto wagon is just the car for farmers. See the I H C local dealer and get facts, figures, and catalogues from him, or, write

International Harvester Company of America
(Incorporated)
146 Harvester Building Chicago U S A
I H C Service Bureau

The purpose of this Bureau is to furnish, free of charge to all, the best information obtainable on better farming. If you have any worthy questions concerning soils, crops, land drainage, irrigation, fertilizer, etc., make your inquiries specific and send them to I H C Service Bureau, Harvester Building, Chicago, U. S. A.



What Sprayer?

Use the sprayer that does the most work most thoroughly at the lowest cost.

Brown's Auto Spray

No. 1 fitted with Auto Pop Nozzle—most powerful and efficient hand outfit. Capacity 4 gallons. For large sprayers—Brown's Non-clog Atomic Spray. Write for low prices and Free Spraying Guide.

The E. C. Brown Co., 20 Jay St., Rochester, N. Y.



WHITEWASHING

and disinfecting with the new

"Kant-Klog" Sprayer
gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free. Address

Rochester Spray Pump Co.
207 Broadway, Rochester, N. Y.



JEWEL---\$300

Ideal Truck for Light Delivery

Single-cylinder engine.
2-cycle, 10-horse power.
No valves, water-cooled.
Planetary transmission.
3 full elliptical springs.
25 miles per hour.
Single-chain drive.
Weight, 900 lbs.
Write for circular.

WM. F. WAGNER

AUTO GARAGE & MACHINE SHOP
Massillon, Ohio



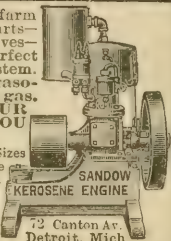
600-POUND TRUCK

Sandow \$37.50 2½ H.P. Stationary Engine—Complete

Gives ample power for all farm uses. Only three moving parts—no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses kerosene (coal oil), gasoline, alcohol, distillate or gas. Sold on 15 days' trial. **YOUR MONEY BACK IF YOU ARE NOT SATISFIED.**

5-year ironclad guarantee. Sizes 2½ to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (116)

Detroit Motor Car Supply Co.,



72 Canton Av.
Detroit, Mich.

HARLEY-DAVIDSON

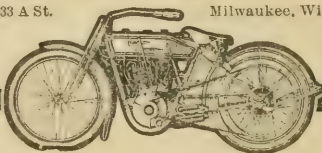
14 Inches of Springs Between You and the Bumps

The "Ful-Floting" Seat (an exclusive feature) makes this machine the most comfortable motorcycle made. No jars, no jolts, just comfort. The "Free-Wheel" Control (also exclusive) permits the machine to be started or stopped by the mere shifting of a lever. The Harley-Davidson holds the world's record for economy, traveling 10 miles for less than a cent. Used extensively by the United States Government. Send for catalog.

HARLEY-DAVIDSON MOTOR CO.

533 A St.

Milwaukee, Wis.



Net \$500.00
to \$1000.00 per Acre
ON WEST COAST OF
FLORIDA

Growing Fruits and Vegetables. In Manatee County raise 2 to 3 crops a year. Land cheap. Terms easy, Climate healthful. No extreme heat or cold. Water plentiful. Quick transportation to big markets.

From the Peanut Fields of VIRGINIA
To the Orange Groves of FLORIDA

The 6 Sou. States, (Va., N. C., S. C., Ga., Fla. and Ala.) traversed by the S. A. L. Ry. offers special inducements. Write for instructive booklet NOW.

J. A. PRIDE, Gen. Ind. Agt.,
Seaboard Air Line Railway,
Suite 611,
NORFOLK,
VA.

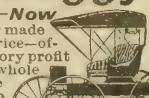
Columbus Buggy

One Price—One Quality—Now

50,000 best Columbus Buggies ever made—exactly alike—one quality—one price—offered this year direct at only \$1 factory profit on each to us. We've reorganized whole factory to make this. 5 weeks Free Trial—2 year guarantee. Satisfaction or money back. Write. Big Facts Portfolio Free.

Columbus Carriage & Harness Co.,
2033 So. High St., Columbus, O.

\$50



Less Than \$10.00 Gives You a SUCCESSFUL Start in the Poultry Business

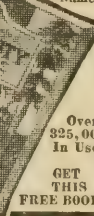
Why invest more? The best known, biggest selling incubator made sells for that price.

OLD TRUSTY Incubators

made by M. M. Johnson, Clay Center, Neb.—sold on 30 to 90 days' trial—all freight prepaid east of Rockies. There are 325,000 now in use—more than have ever been made by any other 5 factories. This ought to be sufficient proof to you that the Old Trusty is the machine you want. Let Johnson send you the book and tell you for how much less than \$10.00 he will send you an Old Trusty, which starts you right in poultry raising.

**M. M. JOHNSON, The Incubator Man,
Clay Center, Nebraska**

Johnson says:
Send Your
Name



Over
325,000
In Use

GET
THIS
FREE BOOK



Built Exactly
Alike For Big-
gest Average
Hatches Free Trial

30 to
90
Days'
Paid
East of
Rockies

The BEST Light

Cheapest and best light for homes, stores, factories, churches and public halls. Makes and burns its own gas. Brighter than electricity or acetylene. Cheaper than kerosene. Over 200 styles. Agents wanted. Write for catalogue.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.



Automobile Owners.....

O'Neil Tire Protectors

eliminate practically all your punctures and absolutely prevent blow-outs. They assure the use of your tires until the last layer of fabric is reached.

You can remove them from one casing to another, because there is practically no "wear out" to them.

The O'NEIL fits inside the casing, nice and smooth, right down to the bead, forming a casing within a casing.

Puncture Proof.....

You know how hard it is to drive a nail through a wall when it hits a loose, flexible lath. The same principle applies when a nail goes through the tread of a tire. It hits the O'NEIL which gives and protects the inner tube. As the wheel revolves, the nail is deflected and rendered harmless.

If you are interested in saving time and money, and getting *double the mileage* out of your tires, write us today for our free "TIRE PROTECTOR BOOK."

**The O'Neil
Tire Protector Sales Co.**

General Offices
1806 Euclid Ave., Cleveland, Ohio



You—and Nine More Men

can tie the world to your homes with wires; with all your country advantages you may have quick news of market and weather reports—your farm or ranch can be kept in close touch with the outside world—at a faster, better, cheaper rate by an Independent Telephone than in any other way. The road—the mail—even the telegraph is slow, compared to the service of a

Stromberg-Carlson Independent Telephone

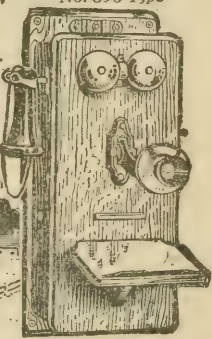
Satisfaction Guaranteed
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Independent—remember that! For you and nine others can organize and own your own wires and equipment; you can install a successful system of absolute ownership of this wonderful convenience—this invaluable help in emergency—this social comfort to all in the home.

Our Free Book tells you all about this, how to get these **Public Privileges with Private Rights**—at nominal cost. Ask for Edition No.21 and address nearest office now.

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Clark's Reversible Bush and Bog Plow is just the tool to subdue baked soil, bogs or newly cleared forests or stump land. Cuts a track 5 ft. wide, 9 in. deep. Has eight 24-inch cutlery steel disks. Turns the earth to or from stumps. Will kill any

bush or plant that grows and leave land true and clear. Send for new book, "Intensive Cultivation." It's Free.

CUTAWAY HARBOR CO.,
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Phelps Big Book

Now Waiting
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**Shows You the
Biggest Selection
of Buggy Styles in
America This Year**

PHELPS' 12th annual Style Book of Split Hickory Vehicles for 1912 is ready—written by Phelps himself—shows you more latest brand new style buggies than 25 dealers could in 10 big cities. How he can guarantee to save you big money on price this season and make you a better buggy to order. Why trade-marked Split Hickory buggies are the best grade made. How you can test any style Split Hickory before you decide to keep it—the way over 150,000 others have. Why it pays you to get your buggy new direct from his factory rather than to buy from "job-lot" or "stock-made" buggies that dealers are carrying.



H. C. Phelps, Pres.

**Save \$25.00 and Up on
Split Hickory
VEHICLES**
**30 Days
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Made-to-Order and Sent to
You For Your Own Road Test

Every Split Hickory is guaranteed 2 years by Phelps—if you keep it after your road test. Just take his book and pick out the style you want—made to order—with your choice of trimmings, upholstery, etc.—Auto Seat Buggies, Surreys, Carriages, Phaetons, Driving Carts, Spring Wagons, etc.—and full line of high grade Harness. All highest grade made. Woodwork in running gears and shafts, of straight grained second growth Shellbark Split Hickory—wheels celebrated triple A grade found on no other Vehicle as explained fully in book.

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Book TODAY.

**H. C. Phelps, President,
The Ohio Carriage
Mfg. Company**

Station 292 Columbus, Ohio

The Largest Buggy Factory in the World Selling Direct to Consumer



**2-Years'
Guarantee**

**BROWN
FENCE**

MOST durable fence made. Heaviest wires. Double galvanized. Stock strong. 13 to 35¢ per rod. Sample free. We pay freight. **The Brown Fence & Wire Co.** Dept. 91 Cleveland, O.



Print Your Own

Cards, circulars, books, newspapers. Press, \$5; larger, \$18; rotary, \$80. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog, TYPE, cards, paper, &c. **THE PRESS CO., Meriden, Conn.**

Aspinwall Non-swarming Bee Hive!

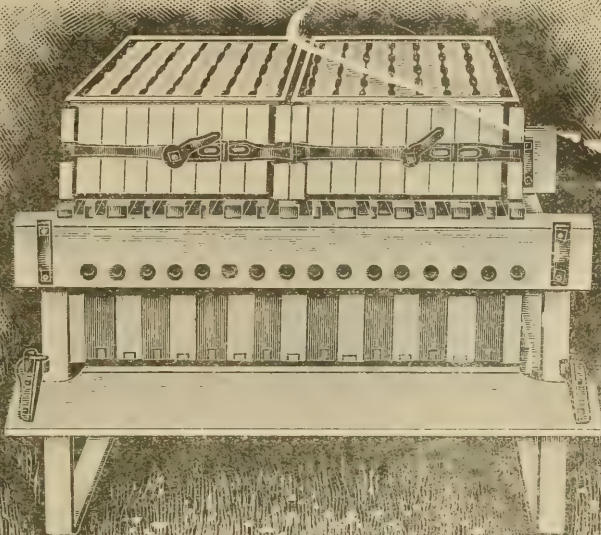
A practical success
after 22 years of
Experimentation.
Another season has
added to its success.

Evenly filled sections
of Honey Produced
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Every Beekeeper
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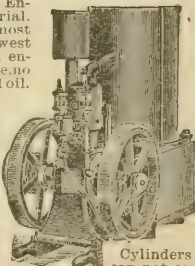
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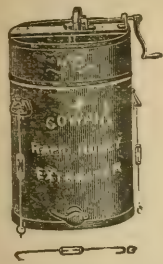
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we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber. O. C. MILLS, Barton Ldg., Vt.

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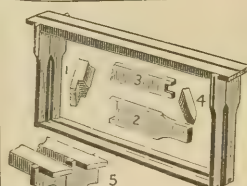
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*Is this cock properly held?
"Poultry Secrets" tells
how to carry fowls, and
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For \$1.00 you can get now not only the **FARM JOURNAL** for **FOUR** full years, but also your choice of any one of our famous booklets, "Money-making Secrets" that other people have bought by the **HUNDRED THOUSAND**.

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In May, 1910, Robert bought 2300 day-old chicks. He spent just one week studying the methods now given in this book. This was his only preparation for the business. Result this "greenhorn" raised 95 per cent of all his chicks—a most uncommon record! Of these, 1350 proved to be pullets. In less than seven months he was getting 425 eggs daily, and selling them at 58 cents a dozen. His feed cost aver aged \$4.00 a day, leaving him **OVER \$17.00 A DAY PROFIT**—and this before *all* his pullets had begun laying.

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These booklets are 6 by 9 inches, all profusely illustrated

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By special arrangement with the publishers, for a limited time we can offer the **FARM JOURNAL FIVE** years and **GLEANINGS IN BEE CULTURE** one year in advance, **BOTH FOR \$1.00**. Or **FARM JOURNAL FOUR** years and any one of the booklets, "Money-making Secrets," with **GLEANINGS** for **ALL THREE for \$1.00** one year . . .

This price is good for a few weeks only, and may be increased at any time without notice.

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Address

The books listed below ought to be of interest to every one who has a small patch of ground to cultivate or a wish to develop some-thing in this line. These books are all in stock, and orders can go out by first mail.

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BY T. B. TERRY AND A. I. ROOT.

Mr. A. I. Root devoted a large part of his time during the summer of 1911 to revising the Potato Book which he wrote in collaboration with Mr. Terry 25 years ago. During the winter the 8th edition of 10,000 copies has been printed. Speaking of this valuable book, and of Mr. Terry, Mr. Root recently had to say:—"It will pay almost every man, woman, and child to read Terry's potato-book, no matter whether you ever did or ever will grow any potatoes or not. If you have read Terry's recent book, "How to Keep Well and Live Long," you will know that he is a student of nature, and a deliver after God's gifts and God's secrets; and this potato-book, on every page, shows his remarkable gift. He is a philosopher of modern date; and his love for God's gifts, as well as his love for his fellow-men, shines out on every page. His studies of potatoes, it occurs to me, paved the way in his explorations in his later work in regard to how we should live, and keep our health." Contains nearly 400 pages, well illustrated, paper bound, 57c each postpaid. Cloth bound, 85c each, postpaid. (Deduct 7c if ordered sent with freight or express shipment.

How to Keep Well and Live Long

BY T. B. TERRY.

I am still gaining. That is what T. B. Terry says to-day, when he is 67 years old, after being so broken in health at 40 years of age that all the doctors who saw him and tried to help him gave him up to die. But Mr. Terry got well by working out his own cure. He tells all about it in his great health book, *How to Keep Well and Live Long*.

There is no other book like it in the world. You don't need to know medical words or medicines to understand it. It is written clearly and simply and has back of it the personal experience which tried and proved every step of the way to a long and healthy life. You can follow the same way. The book is only one year old, but over 5150 copies of it to date are making men and women healthier and happier because they have read and followed the teachings of its pages.

Nearly a thousand copies of this helpful book have been distributed through the publishers of "GLEANINGS IN BEE CULTURE," and not a single reader has expressed regret at his bargain. Mr. A. I. Root heartily endorses Mr. Terry's writings on health subjects. Contains 220 pages, substantially bound in cloth; \$1.00 per copy postpaid.

The Dollar Hen

"Every few days the friends write me, asking what poultry-book they had better purchase—which one I would recommend above all others, etc. Well, to get right down to it there is no *best* poultry-book. There are many good ones, but no one book contains *all* that is good. The one that is most emphatic against humbugs and frauds, especially costly medicines for dosing chickens, etc., is the one I have frequently referred to, "The Dollar Hen," by Milo M. Hastings.

The Dollar Hen is a real book, substantially bound—not a paper-bound pamphlet of "System," "Secrets," or "Methods," but a book worth several dollars of any poultryman's money. "The Dollar Hen" is a vast fund of valuable information that required much time, expense, and effort. Contains more than 200 pages; price postpaid \$1.00 per copy.

A B C of Strawberry Culture

Fully illustrated, 235 pages: Price 45c; by mail, 5c extra; cloth, 68c; by mail, 75c. New edition, revised and enlarged. This is also one of Terry's and has received some very high words of praise. Who that keeps honeybees does not also have a little garden patch? If you would learn to raise in it that most luscious of all fruits, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be the better for reading it.

Tomato Culture

In three parts. By J. W. Day, D. Cummins, and A. I. Root; a most valuable treatise, embracing field culture, forcing under glass, and raising plants for market. Valuable to any one raising garden stuff of any kind aside from tomatoes. 150 pages illustrated. Price 35c; by mail 40c.

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By W. I. Chamberlain. This is a valuable companion to our other rural books. It embraces the experience of 40 years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Price 35c; mail, 40c.

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By T. B. Terry. In which he tells "how we have made a run-down farm bring both profit and pleasure." This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. Price 75c; postage 10c. Same in paper covers, postpaid, 50c; by express or freight with other goods, 10c less.

What to Do, and How to be Happy while Doing It

The above book, by A. I. Root, is a compilation of papers published in *GLEANINGS IN BEE CULTURE*, in 1886, 1887, and 1888. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. Price in paper covers, 50c; cloth, 75c. If ordered by freight or express, deduct 8 and 10c respectively.

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The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book. 90 pages, paper bound. 27 cts. per copy postpaid.

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Author of the *Beekeeper's Guide*. This practical book, written several years ago, remains the most popular treatise on procedure in the sugar-bush. Contains 40 pages size of this one—paper bound and illustrated. Price per copy, 28c postpaid.

A B C of Carp Culture

This is a work of 70 pages 7x10 written by Geo. Finley and A. I. Root, and the best authority on the subject of carp culture yet in print. The rearing of carp is a pleasant and profitable amusement. This book will tell you all about it. In paper covers. Price 25 cts.; by mail 5 cts. extra.

Winter Care of Horses and Cattle

This is T. B. Terry's second book in regard to farm matters; but it is so intimately connected with his potato book that it reads almost like a sequel to it. If you have only one horse or cow it will surely pay you to invest in this book. Forty-four pages; four illustrations. Price 25 cts.; by mail, 30 cts.

The A. I. Root Co., Medina, Ohio.

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70 cases white alfalfa sweet-clover honey, finest quality, 7 c. per lb. T. H. WAAL, Nampa, Ida.

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

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FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN CO., Grand Rapids, Mich.

Fine white and light amber alfalfa honey put up in any size of tin packages, any quantity. DADANT & SONS, Hamilton, Ill.

FOR SALE.—1500 lbs. extracted honey (white, al-sike, and sweet clover) in 60-lb. cans, two in a case. First class. Price 7½ cts. per lb. J. RIDLEY, Stevensville, Mont.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extract-ed. Write us before disposing of your crop. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies, either for money or honey. February cash discount, 2 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To lease for this year 200 colonies of bees—Italian or German brown; must be free from disease, and in good hives. S. T. LANCASTER, Tyson, Ida.

For Sale

WANTED.—Second-hand hives for cash. Address GLEANINGS, Medina, O. 3613

FOR SALE.—New and second-hand 8-frame hives cheap. A. EHLERS, Carthage, Mo.

FOR SALE.—15 Danz. hives, good as new. CARVER SMITH, North Manchester, Ind.

New crop alfalfa seed: 4 lbs. by mail, \$1.10; 50 to 100 lbs., 15 cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

Sweet-clover and alfalfa seed in any quantity. Write for prices. JOHN C. FROHLIGER, 257, 259 Market St., San Francisco, Cal. Berkeley, Cal.

FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce over-stock. A. G. WOODMAN CO., Grand Rapids, Mich.

Pennsylvania beekeepers.—Having bought the supply business of Geo. H. Rea I am now ready to furnish a full line of Root's goods. Full car just in. Catalog free. THOS. H. LITZ, Osceola Mills, Pa.

High prices knocked down on bee and poultry supplies. Best sections on earth, \$4.00 per 1000, till May 1. Best eight-frame white-pine hive, \$1.00; 15 eggs of fancy poultry, \$1.00. Catalog free. H. S. DUBY, St. Anne, Ill.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—100 Hoffman frames at \$2.75; 40 1½-story ten-frame hives at \$1.50 each, and 100 section-holders for 4¼ x 4¼ sections at \$2.50. All these goods are new, and have never been used. G. E. MORGAN, 309 N. Edwin St., Champaign, Ill.

Cheapest honey-package in existence. One-pound friction-top tin can. One cent each in lots of 100. Attractive 15-ounce jars at \$4.00 a gross. J. E. CRANE & SON, Middlebury, Vt.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla.), the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama. Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

Bees and Queens

WANTED.—To buy bees; also to work on shares.
H. L. SOPER, 529 Lansing Ave., Jackson, Mich.

WANTED.—Carload (300 hives) of bees for cash.
F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—11 colonies and 40 hives.
MRS. LAURA HEINTZELMAN, Orrtanna, Ad. Co., Pa.

FOR SALE.—150 colonies of bees in fine condition.
A. HUNT, Rodman, N. Y.

Our queens will please you. C. W. PHELPS & SON,
dealers in beekeepers' supplies, Binghamton, N. Y.

WANTED.—Carload of bees for cash.
JOHN C. BULL, General Delivery, Hammond, Ind.

WANTED.—Full colonies of Italian bees in full-
depth or sectional hives—sectional preferred.
L. H. ROBEX, Worthington, W. Va.

Virginia queens, raised in full colonies, ready by
May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—50 good colonies of bees on L. frames;
\$2.25 each, f. o. b. cars.
W. D. CARDER,
Constance, Ky.

FOR SALE.—Three-banded Italian queens bred for
honey, gentleness, and prolificness. One, \$1.00; 6
for \$5.00.
WM. S. BARNETT, Barnett's, Va.

WANTED.—50 colonies to a carload of populous
bees. Make lowest price on the same.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Full colonies of pure Italian bees in
eight-frame dovetailed hives with Hoffman frames,
at \$6.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—High-grade bees, queens, supplies,
and pure-blooded poultry and eggs.
A. M. APPLGATE, Reynoldsville, Pa.

Choice Italian queens, delivery beginning April
15. Untested, 75 cts.; tested, \$1.00. Ten years' ex-
perience in queen-rearing. Send your orders now.
F. HUGHES, Gillett, Ark.

Golden Italian queens, 1911 rearing—tested, \$1.00;
select, \$1.25; untested, about May, 70 cts. each; doz-
en, \$8.00. Send for circular and price list.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden untested queens at 75 c. each,
or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00;
select tested, \$2.00, or 6 for \$10.00. Safe arrival and
perfect satisfaction guaranteed.
R. O. COX,
Box 8, Garland, Ala.

Colonies of Italian bees in L. hives, 10-fr., built on
full brood-frames, wired, body and shallow super,
redwood dovetailed, three coats white sheeted lids;
each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees,
the brightest kind. Gentle, and as good honey-
gatherers as can be found. Each \$1.00; six, \$5.00;
tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

QUEENS.—Mott's strain of Italians and Carniolans.
Ten-page list free. Plans for introducing Queens,
15 cts.; How to Increase, 15 cts.; both, 25 cents. Nu-
clei; bees per lb. E. E. MOTT, Glenwood, Mich.

WANTED.—100 colonies Italian bees, to be deliver-
ed as soon as weather permits. Must be guaran-
teed free from disease, in good standard 8 or 10
frame hives. State full particulars in first letter.
WM. LARSEN, Green Bay, Wis.

Italian queens of Superior strain, from grafted
cells built in strong colonies. No foul brood or other
disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY CO.,
College City, Cal.

Nucleus and full colonies. Bees by the pound.
Apiaries inspected for brood diseases. Tested and
better grades of bees. Root's bee supplies. Write
for circular and catalog. FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

A tested queen will save that queenless colony.
Introduce her now. We can furnish them for \$1.00
each by return mail. Three-banded Italians only.
Send for price list. J. W. K. SHAW & Co.,
Loreauville, La.

Golden and three-banded Italian queens. Tested,
\$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Un-
tested, one, 75 cts; 3, \$2.00; 6 or more, 65 cts. each.
There is no disease here. Bees, per lb., \$1.00; nu-
clei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

FOR SALE.—Early "Italian" (Frofalcon) queens.
March delivery, untested, \$1.50 each; April, \$1.25.
Tested queens 50 cts. additional; select tested, \$1.00
extra. JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

FOR SALE.—Moore's strain and golden Italian
queens, untested \$1.00; six, \$5.00; twelve, \$9.00. Car-
niolan, Banat, and Caucasian queens, select, \$1.25;
six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six,
\$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

QUEENS AND NUCLEI.—My strain of three-banded
Italian bees are developed honey-gatherers. My
entire time has been given to them during the last
12 years. Warranted queens, 75 cts. each; \$8.00 per
dozen; tested queens, \$1.00 each, \$10.50 per dozen.
Three-frame nuclei with tested queen, \$3.50 each.
Satisfaction guaranteed. W. D. ACHORD,
Fitzpatrick, Bullock Co., Ala.

Goldens that are golden. Queens that produce
golden-to-tip workers, hardy, and honey-getters; a
race of bees that has taken 15 years to produce,
and will please all who try it; have had as high as
300 lbs. surplus to hive in one season. Will replace
all mismatched \$1.50 queens. Pure matings guaran-
teed. Queens, \$1.00 to \$2.00. Send for booklet.
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

Help Wanted

WANTED.—Assistant apiarist. State age, experi-
ence, and wages. F. B. CAVANAGH, Hebron, Ind.

WANTED.—Assistant apiarist. Must be steady,
honest, and willing to go to Colorado or Montana
as needed. THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

WANTED.—One or two men who thoroughly un-
derstand the bee business for both comb and ex-
tracted honey and increase. Reference wanted.
RASMUS HOFF, Idaho Falls, Idaho.

Real Estate

FOR SALE.—40 acres irrigated land in Southern Idaho—5 acres alfalfa; or will rent. Address OWNER, Box 47, Sorrento, Fla.

FOR SALE.—A first-class apiary and mountain home. Ideal for health-seeker. H. E. WILDER, Riverside, Cal.

FOR SALE.—A good four-room house and barn on four lots in the city of Stanfield, Ore.; also 150 colonies of bees in a good locality for comb honey. Address T. J. BARRINGER, Stanfield, Ore.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates. F. H. LA BAUME, Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

Miscellaneous

To sell or exchange, 220-egg Cyphers incubator for honey or bee supplies. J. F. SEMPERS, Aikin, Md.

FOR SALE.—1½ h. p. Associated Mfg. Co's gasoline-engine in good condition; \$26.00 takes it. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

Rubber stamps to order. Egg-daters, 60 cts. Leg-horns, W. Wyandotte breeder. JEFF. MACOMBER, Gaylord, Mich.

Soy bean. Sample, 6 kinds, 25 cents by mail; for coffee and poultry. Test them. Canna and dahlia. JACOB MCQUEEN, Baltic, O.

Combine best features of all queen-rearing systems by using "Eureka Larva Transplanter," 50 c. See GLEANINGS, Dec. 1, 1910, page 765. MARK W. MOE, 1716 Exposition Av., Denver, Col.

FOR SALE.—A brand-new Kenmore automobile, used only for demonstrating. Can be used for delivery or pleasure. Will sell at 20 per cent discount. LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Light Sears auto truck, capacity 700 lbs.; almost brand-new; speed 25 miles; have no use for it. Will crate and ship anywhere. Price \$285. C. R. FLORY, Lemore, Cal.

"A beekeeper can improve his bees without buying queens." So says Geo. B. Howe. Read his articles on queen-rearing, beginning in the March Review. Three months' trial, 15 cents. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00. J. F. MICHAEL, Winchester, Ind.

White Indian Runner duck eggs. Great fertility. O. WESTFELT, Halcyon, California.

FOR SALE.—Indian Runner duck eggs from fine stock—\$1.00 per 12. CARLTON IPDYKE, Bryan, O.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

I. R. duck eggs, fawn and white brownies, 20 for \$1.00. White-egg strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

Indian Runner ducks, fawn and white—splendid layers. White eggs, 15, \$1.00. WM. STUMM, Rt. 3, Edinburg, Ill.

Golden-laced Wyandottes and Indian Runner ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50. DR. D. OSCAR MEAD, Pinckneyville, Ill.

Am booking orders for White Indian Runner duck eggs—true I. R. type, and white; no sports; handsome and hardy. Also eggs from both light fawn and penciled strains. State which you want. F. J. ARMSTRONG, Nevada, O.

Orders for eggs that will hatch, at 10 cts. each, for Indian Runner ducks, white and fawn; also for Buff Rock chickens; both standard stock, and from good laying strains. Write; want to tell you more about them, or place your order now. J. RUDY ROEBUCK, Dalton, Ohio.

I have the typical Indian Runner ducks. They are the queens of all layers; and as for beauty, the artist's brush has never surpassed them. They stand preëminent to-day. My foundation stock is from the original winners at the Jamestown exposition. Pure-white eggs, 13 for \$1.00; 100, \$7.00. Satisfaction guaranteed or money refunded. This advertisement will be lived up to, to the letter. ROBERT BIRD, Rt. 2, Pinckneyville, Ill.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs. C. O. YOST, Rt. 4, Winchester, Ind.

Poultry

S. C. R. I. Reds. Eggs for sale. Choice stock; \$2.00 per 15. M. R. ROTE, Dakota, Ill.

Sicilian Buttercups. Eggs for hatching. Circular free. D. S. DURALL, Hurdland, Mo.

FOR SALE.—W. C. B. Polish eggs, \$1.50 per 15. EARL Y. SAFFORD, Salem, N. Y.

Barred Rock eggs—Bred-to-lay strain; \$1.00 per 15. Catalog free. J. W. DAIL, Cambridge, Md.

R. C. R. I. Red eggs; fine laying strain; \$1.00 per 15; \$3.00 per 60. DAN'L JOHNSON, Cazenovia, N. Y.

FOR SALE.—Eggs of winter-laying strain of pure-bred S. C. R. I. Reds, \$1.50 per 15. E. E. SMITH, Kitchen, Ohio.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs—\$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100. C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkville, Ill.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers. C. M. MYERS, Winchester, Ind.

Anconas—best winter layers. Eggs in any quantity. Catalog free.
EVANS & TIMMS,
Box M, Malta, Ohio.

Kellerstrass Orpington-Wycoff S. C. W. Leghorns. Birds reasonable. Eggs, \$1.50 to \$3.00 per 15.
CLAUD IRONS, Linesville, Pa.

S. C. White Leghorns, bred to lay. Free range. Eggs, 15, 75 cts.; 100, \$4.00.
HOMER ZIMMERMAN, Sugar creek, O.

Baby chicks, thoroughbred stock; broiler chicks, \$8.00 per 100; Leghorns, \$10.00 per 100; P. Rocks and Reds, \$10.50.
CHESTNUT HILL POULTRY FARM, Biglerville, Pa.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address
THE VAN DRUST FARMS, Cedar Grove, Wis.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free.
GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Baby chicks, 9 breeds. Prices from 9 cents up; 100,000 chicks hatched per year. Catalog free. Over 6000 laying hens.
TAYLOR'S POULTRY YARDS,
(Sales Dept.) Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. W. O. ROUDABUSH, Hagerstown, Md.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Eggs from Houdans, Buff Rocks, Indian Games, Silver Wyandottes, Buff Leghorns, Rose C. B. Leghorns. Eggs \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Bronze turkey eggs, \$2.00 per 9; \$4.00 per 22.
DALE HART, Box 19, Broadwell, Ohio.

Pigeons and Pet Stock

PIGEONS! PIGEONS!—Thousands in all leading varieties at lowest prices. Squab-breeding stock our specialty; 17 years' experience. Illustrated matter free. PROVIDENCE SQUAB CO., Providence, R. I.

Bee-keepers' Directory

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five years wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

BY OUR BUSINESS MANAGER

We have about two tons of choice Michigan and New York State amber extracted honey in five-gallon cans. The largest part of the honey was gathered from clover, but we presume many of the producers were busy with other work so did not get it extracted until after the fall flows came on, so there is enough dark honey mixed with this to grade it amber. We offer it put up in the original packages of two five-gallon cans to the case, at 8½ cents per lb., delivered in good condition on board the cars at Medina. We seldom have a lot of honey as good as the above at such a low price. In ordering mention lot No. 107.

MAPLE SYRUP.

The weather conditions at this writing, March 25, are so very unfavorable that practically no maple syrup or sugar has been produced this year. We usually get a good run during the last two weeks of February. Yesterday we had a heavy fall of snow, and it now looks as if the cold weather would continue for an indefinite period. Many producers have not as yet tapped any trees. We regret that we shall be obliged to return all orders received to date unless the weather improves very much in the next ten days.

ALSIKE CLOVER SEED.

The time for seeding clover is here, and we can offer a limited quantity of good alsike seed for shipment from Stockport, Iowa, if ordered at once, bag included, at \$3.75 per peck; \$7.00 per half-bushel; \$13.75 per bushel, or two bushels for \$27.00. This is below the present wholesale market, and the offer is made only for prompt orders, and while the lot available lasts.

Beekeepers will find it profitable to encourage the sowing of alsike within range of their bees by paying a part of the cost of seed. Alsike, being much finer seed than medium clover, does not require as much to the acre, so that it is cheaper than any other kind at the present market price.

SWEET-CLOVER SEED.

Since our last issue we have secured over a ton of hulled white-sweet-clover seed at a price lower than the imported seed offered in our last issue. This enables us to offer it again at prices ruling early in the season. The imported seed has a rather fresher and plumper appearance than the home-grown lot we have secured. We are prepared to furnish either at the following prices:

In lots of—	1 lb.	10 lbs.	25 lb.	100 lb.
Hulled Yellow Annual (<i>Melilotus Indica</i>), per lb	15c	12c	11c	10c
Hulled White, impo'd seed	27c	24c	23c	22c
Hulled White, domes'c	25c	22c	21c	20c
Unhulled White (<i>Melilotus alba</i>) per lb.....	16c	14c	13c	12c

We can ship the imported from Medina or New York, and the domestic from Medina. We are sold out of the biennial yellow, but have a plentiful supply of annual yellow and unhulled white.

Convention Notices.

The North Texas Beekeepers' Association will hold its 31st meeting at Greenville, Texas, on the first Wednesday and Thursday in April, 1912. All beekeepers are cordially invited to attend. We are expecting to have a great meeting.

Greenville, Texas. W. H. WHITE, Sec.

The annual meeting of the Connecticut Beekeepers' Association will be held Saturday, April 13, 1912, at Y. M. C. A. building. Good speaking. The matter of forming a branch of the National Association will be considered.

Hartford. JAMES A. SMITH, Sec.

Inclosed find \$1.00 to renew my subscription to GLEANINGS. April 2, 1912, makes 30 years of subscription to it. Uncle Amos' side issue is worth all it cost, and more too.

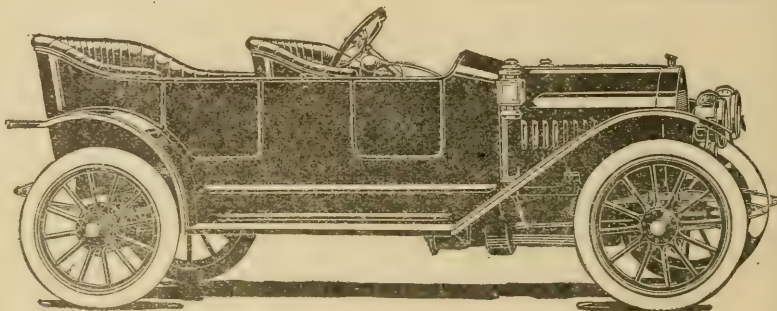
Cuba, Ill., March 12.

M. W. MURPHEY.

Jackson

YOU can see the superb value in Jackson cars.

Model Thirty-two—\$1100



You see it in their size—their power—the ease with which they ride.

In the instant and willing response of their powerful motors—in their ability to cope with a difficult situation.

Fifty horsepower—which usually means \$3000 or more—is yours in the Jackson '52' for \$1800, supplemented by the long wheelbase (124 inches) and the big wheels and tires (36 x 4 inches) so necessary to comfort in a high-powered car.

Instead of the 30 horsepower that a price of \$1500 has always implied—40 horsepower in the Jackson '42' at that price; with wheelbase of 118 inches; 34 x 4 inch tires; and complete equipment of top, windshield, gas tanks, lamps, etc.

Jackson



And in the Jackson '32"—our \$1100 car—30 horsepower, 32-inch wheels, 110-inch wheelbase. Of the same high quality, in every detail, as the larger Jacksons.

Full elliptic springs, instead of the usual half or three quarter elliptic, on every Jackson car—simply another proof of the value already apparent.

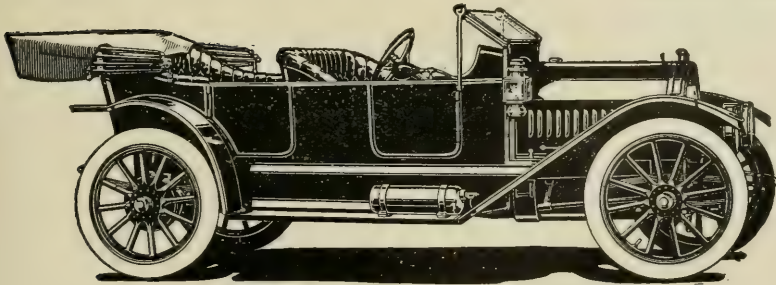
A generosity of power, and size, and riding ease that, as a rule, is the especial attribute of the costliest cars.

And back of it all a progressive experience of more than ten years in the manufacture of good automobiles.

All we ask you to do is to go to the Jackson dealer and confirm what we have told you.

**Let us send you our complete
catalog, illustrated in two colors.**

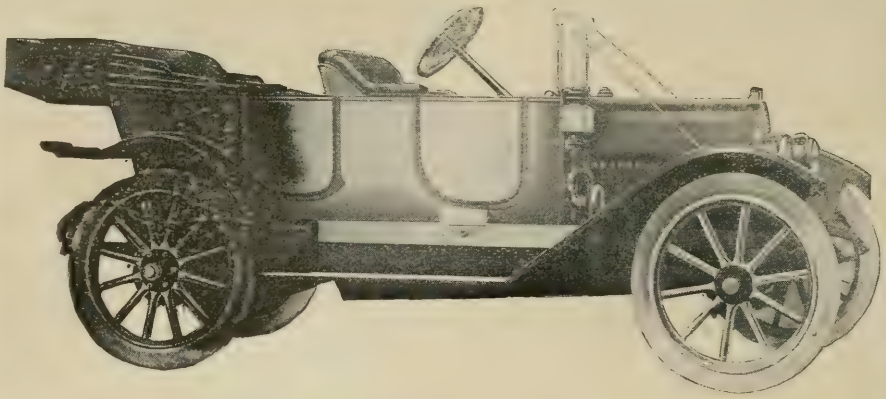
Model 45—\$1650



"No Hill too Steep—No Sand too Deep"

Jackson Automobile Co.,
995 Main Street
Jackson, Mich.





Cartercars give perfect service for all drivers.

Both the novice and expert find the Cartercar delightful to drive over all kinds of roads. The simple, efficient construction means perfect response to the very easy control.

The most important feature of the Cartercar affording simplicity and efficiency is the patented Friction Transmission. It is composed of only two unit parts—a fiber-faced wheel and a friction disc.

The friction disc runs against the fiber-faced wheel, and their relative positions govern the speed of the car. This gives any number of speeds, and they are all controlled with one lever.

On the low speed the leverage afforded by this friction drive is so great that the car will do seemingly impossible things. It will actually climb a 50 per cent grade with a full load.

This tremendous power enables the Cartercar to travel roadways which would be im-

possible for the usual three-speed cars. It is impossible to stall the motor in bad muddy and sandy places.

To transmit the power to the rear axle, a chain-in-oil drive is employed. The chain runs in a constant oil bath; and all grit and dirt being kept out, wear is prevented.

Although these two features are largely responsible for the wonderful popularity of the Cartercar, yet it has every modern idea of automobile construction, such as full floating rear axle, valve-encased motor, long wheel base, large wheels, etc.

The equipment is absolutely complete, including self-starter, speedometer, gas-tank, windshield, top, top-cover, trunk-rack, five lamps, tonneau mat, robe-rail, tools, etc. Prices range from \$1200 to \$2100.

Send for complete information about this famous car, and where you can secure demonstration.

Cartercar Company,

Pontiac, Michigan.

Gleanings in Bee Culture



VOL. XL. • APRIL 15, 1912, NO. 8

Special CLUBBING OFFER

Koeth's Kombination Kit is an arrangement whereby one pair of plier handles is made to serve a number of different tools which come as sets of heads. By an interlocking device the handles may be fastened readily to any set of heads; and each part being interchangeable, the heads may be combined so that as many as fifteen or more different tools may be formed. The elimination of many different handles makes a saving in cost, convenience, and weight that will be appreciated by every one who uses tools.

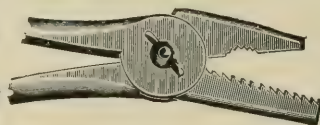
It is on the same plan as one brace for a set of bits, one handle for one set of taps and dies; and there is no more object in having handles for all the plier-like tools than having a brace welded to each separate bit.

This set consists of one pair of handles and six sets of heads, which give the following tools, ranging from ten to eleven inches in length: Pincers, End-cutting Pliers, Harness, Belt, and Leather Punch, Pruning Shears, Tinners' Snips, Pliers, Wire Cutters, Adjustable Alligator Wrench, Pipe Tongs, Nut Crackers, Screw-driver, Tack Puller, Nail Puller, Calipers and Dividers. The heads are of tool steel, drop-forged, ground, tempered, and highly polished. The handles are of steel, ground and polished, and are finished in blue or polished nickel. Each tool is fully warranted.

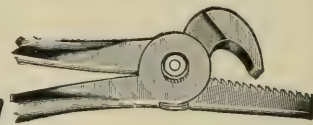
The Kit is invaluable for mechanics, plumbers, farmers, bicyclists, automobilists, or any man who ever lays hand to tools.



Leather Shears



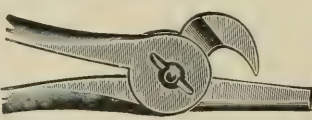
Double-Header Wrench
3/8 and 1/2 inch pipe



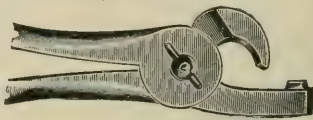
Pipe Wrench
3/8 and 1/2 inch pipe, etc.



Pipe Wrench
For a close place



Wrench for Nickel-Plated Pipe
Small size

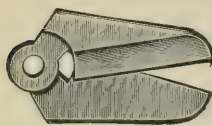


Wrench for Nickel-Plated Pipe
Doesn't tear the nickel. Fold paper several thicknesses and put around the pipe.

NIPPERS

One of the most useful of the heads. It is of the same shape and design as ordinary nippers.

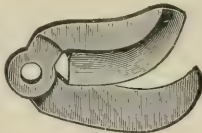
TIN SNIPS



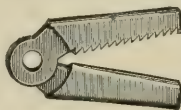
Are nicely beveled and made especially strong. The reversible spring on the handles makes a noticeable addition to their utility. The wing nut furnishes a tension which will make it possible so to adjust these blades that they will cut various thicknesses ranging from tissue paper to sheet iron.

PRUNING SHEARS

This head is finished up in the same manner as the Tin Snips, the only difference being in the shape of the blades. Should any part break through faulty construction, a new part is supplied without charge. If with much use a part wears out, at small cost a new part is supplied and the tool is again complete. By combining jaws of different sets many special



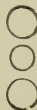
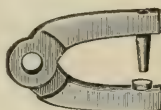
pliers or wrenches can be formed which will prove valuable in certain lines of business.



THE ALLIGATOR WRENCH

This head is adjustable, and adapted to a wide range of sizes. To engineers, pipemen, and machinists, this one tool is worth the cost of the entire set because of its adjustable features; and by assembling one-half of either the pincers or plier jaw with the ratchet portion of the Alligator jaw, a still wider range of work can be covered.

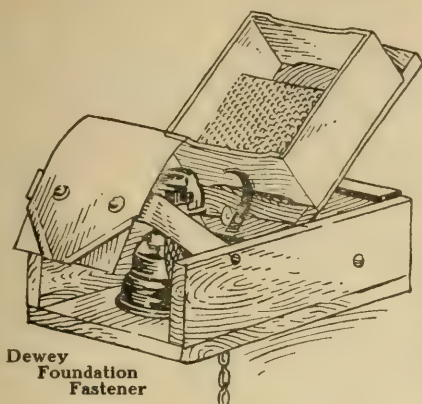
LEATHER PUNCH



The tubes of this punch are made of hexagon tempered tool steel in the following sizes: 3/32", 4/32", 5/32", which are securely fastened by means of an accurately cut thread, and all are interchangeable. Each Kit is equipped with one of the medium sizes of these tubes.

The entire Kit with Blue Handles, wrapped and packed in a midget tool chest with hard-wood sides and covers, finished in natural wood, with brass hinges and clasp, \$1.50. Sent by mail or express prepaid to any point in United States with GLEANINGS one year \$5.00.

The A. I. Root Company, Medina, Ohio



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An unexcelled
trio manufactured exclusively
in the Falcon
factory,
Falconer, N. Y.

and Dewey
Foundation
Fastener...

Send for descriptive circulars.

If you do not have copy of our 1912 Red Catalog, send for it to-day. It has been pronounced by some of the largest honey-producers, "the most logically arranged and easiest from which to order of any catalog ever published."

"falcon" Goods

Prompt Service, "FALCON" Carload Distributors.

Southern Beekeepers

In the Extreme South—J. J. Wilder, Cordele, Ga., and Bradentown, Fla.
At the Apex of Distribution—Fred W. Muth Company, 51 Walnut St., Cincinnati, Ohio.
In the Southwest—J. W. Reid, Uvalde, Uvalde County, Texas.

Western Beekeepers

Pacific Coast—J. C. Frohlinger, 257 Market St., San Francisco, Cal.
In the Extreme South—J. W. Reid, Uvalde, Uvalde County, Texas.
At the Railroad Distributing Center—C. C. Clemons Bee Supply Co., 130 Grand Avenue, Kansas City, Mo.

Middle-State Beekeepers

On the Western Border—C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
In the Center—W. T. Falconer Mfg. Co., 117 No. Jefferson St., Chicago, Ill.
On the Southern Border—Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
On the Eastern Border—W. T. Falconer Mfg. Co., Falconer, N. Y.

Eastern States

New York—Dero Taylor, Lyons; Hudson Shaver & Sons, Perch River; Charles Stewart, Johnstown; W. T. Falconer Mfg. Co., Falconer; C. B. Howard, Romulus.
Pennsylvania—Northwestern Border—W. T. Falconer, Mfg. Co., Falconer, N. Y. Western
—A. M. Applegate, Reynoldsville. Southeastern—J. R. Rambo, Collingdale.
New England States—Ross Bros. Co., 90 Front St., Worcester, Mass.; Cull & Williams Co., 180 Washington St., Providence, R. I.

Foreign Beekeepers

In nearly every foreign country we have an established distributor, and can supply the wants of foreign bee-keepers everywhere. In such localities as we are not represented, are always glad to take up the matter with those desiring to handle goods.

There are other dealers in many localities. Send us a list of 1912 requirements for quotation from our nearest dealer, or delivered if you desire.

RED CATALOG sent *postpaid*.

We have many interesting and instructive circulars including that concise beginners' treatise, Simplified Beekeeping, which we gladly mail postpaid upon request.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y.

117 North Jefferson St., Chicago, Ill.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, April 4. **BLAKE-LEE CO.**

ALBANY.—The honey market is slow, with no receipts of comb honey to sell at any price. Extracted is dull, and prices are weak at 6 to 6½ for buckwheat extracted.

Albany, April 3.

H. R. WRIGHT.

DENVER.—We have no comb honey to quote. Our market is entirely cleaned up. Our jobbing quotations on white extracted are 9 cts.; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, April 4. **F. Rauchfuss, Manager.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, April 2.

WALTER S. POWDER.

ZANESVILLE.—The effect of voting back the saloons in Muskingum and adjacent counties last December is becoming very marked, local business generally being demoralized, the honey trade, of course, sharing in the general depression. Though weather conditions have improved perceptibly, which ought to stimulate the demand, sales for three weeks past have been exceptionally light—no change in prices since last quotations—20 cents for best grades of white comb, and 11 to 12 for best white extracted in 60-lb. cans. Producers are offered for beeswax 29 cts. in cash, or 31 in exchange for bee-supplies.

Zanesville, O., April 3.

E. W. PEIRCE.

ST. LOUIS.—There is nothing new to report in our honey market. The stocks of all grades of honey are small, and comb honey is almost exhausted; so the quotations are more or less nominal on both grades. We quote fancy white comb honey at 16 to 17; No. 1 white, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light-amber California brings 8½ to 9; Southern light amber, 8 to 8½ in five-gallon cans; Southern in barrels and half-barrels, 7 to 7½ for light amber. Dark sells for less. Beeswax, prime, brings 30 cts. per lb.; impure and inferior, less.

R. HARTMANN PRODUCE COMPANY,
St. Louis, April 5.

Continued on page 5.

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By proving that our MUTH SPECIAL and IDEAL METAL-COVERED DOVETAILED HIVES are better than any on the market.

There is EXTRA MONEY in OUR Supplies

Send for our catalog.

We pay highest cash price for Honey and Beeswax.

THE FRED W. MUTH CO.

"THE BUSY BEE MEN"

51 WALNUT STREET

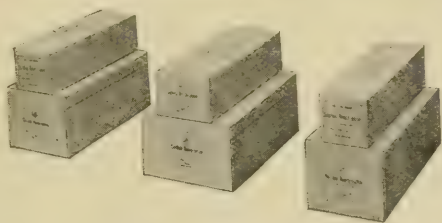
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for this section of the country. We are located on the great trunk lines for points south of us, and orders received from this territory are shipped out at once on direct routes so that customers are assured of prompt service and a minimum charge for transportation.

Coupled with the advantages offered by these resources is the service we maintain for our patrons. At this season of the year our stocks are complete, and we are making extra efforts to handle orders with the greatest dispatch possible, so that there may be absolutely no delays in filling hurry orders. Our long experience in the supply business enables us to anticipate your wants to such an extent that we have included your order with ours to the factory, so we are simply waiting your instructions to get them started to you.

For the small beekeeper, and those who have a part of the supplies they will need for the coming season, we have goods put up in small original packages. For instance, there is foundation of all grades packed at the factory in one, two, three, four, and five pound cartons. Sections of all standard sizes in cartons of 100, 250, and boxes of 500.



These small packages enable the beekeeper to buy in quantities just suited to his needs, with the assurance that the goods will reach him in the best condition possible, and with no loss on account of a broken package.

If you have lost some bees the past winter, don't be discouraged, but prepare to make the very most of those you have left, or to replenish your hives, for the coming season is bound to be a good one; and if there has been quite a loss in your vicinity there will be all the more nectar for your bees to gather. Be sure that the season finds you prepared to give them plenty of room in which to store the harvest when it comes.

If you haven't had your catalog from us, there is one ready to mail if you will give us your present address.

C. H. W. Weber & Co.
2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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H. H. ROOT

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THE HOME CORRESPONDENCE SCHOOL

Dept. 493, Springfield, Mass.

Honey Markets, continued from page 2.

CHICAGO.—There are some sales effected in comb honey right along, but mostly to small buyers who are inclined to buy only from hand to mouth, and we do not look for much business in the honey line after May 1. Extracted honey is moving more freely, but trade on this commodity is not what it was a year ago. We still have some very fancy Utah water-white alfalfa extracted honey in stock; also fancy Southern California light-amber extracted in 60-lb. cans. Write for prices when in the market, stating quantity desired. We quote fancy and No. 1 white and light-amber Western alfalfa comb honey, packed in 24-section double-deck cases, glass fronts, 16; second quality, same as above, \$3.00 per case. No. 1 white Wisconsin clover comb honey, packed in 24-section flat cases, glass fronts, brings 16 to 17; choice quality and light-amber Wisconsin, same as above, 14 to 15. Medium amber and other inferior grades bring from 2 to 3 cts. per lb. less than the above prices. Bright pure beeswax is firm at from 30 to 32.

Chicago, April 3.

S. T. FISH & Co.

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Apiaries, Glen Cove, L. I.



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Blanke Bldg., St. Louis, Mo.

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Patent Counsel of
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The Crisis

The next few weeks will be a critical period in the life of your bees. They have survived the rigors of a severe winter, but possibly with weakened vitality and depleted stores. From this time until the early honey-flow, brood-rearing will be well under way and the draft on their resources will be very heavy. Vigilance now is the price of success later. A little feeding and timely care will carry the bees safely over the crucial interval.

No less is this a crisis in the beekeeper's experience; for his action or inaction now in caring for his bees, ordering needed supplies, and preparing his equipment for the harvest, will determine to a certainty the measure of his success or failure.

Seasonable goods of all kinds—feeders, veils, gloves, smokers, hives, sections, foundation—any thing and every thing appertaining to bees—are here at OHIO'S BEE-SUPPLY CENTER immediately subject to your order. If your name is on our list of customers, you have already received the 1912 catalog or will receive one in a few days. An early order from you will be appreciated. Write, anyhow. Your letters are always welcome.

If you are not already a customer a large illustrated catalog of bee-supplies and specialties will be mailed you on request.

EDMUND W. PEIRCE

136 West Main St., Zanesville, Ohio.

Baby Chicks

Nice big strong vigorous chicks is what we ship. Safe arrival guaranteed. Price 8 to 15 cts. each; 100,000 for sale this season. Catalog free.

JOS. A. BLUM & CO., Dept. 3, Chatfield, Ohio.

BARGAINS IN BEE SUPPLIES

The recent death of James Heddon leaves us with a large amount of Bee Fixtures and Supplies of almost every description, which will be sold at a great sacrifice. Write us for inventory and write at once, as these goods will not last long at the prices we are closing them out at.

James Heddon's Sons,

Dowagiac, Michigan

Why Not REAR Your Own QUEENS?

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal for 1912—Both for Only **\$1.00**

Every Bee-keeper Should Have Both Book and Bee-Paper.

DOO LittLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both a amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now before the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1912, for only \$1.00, is certainly a big bargain for you. Send the \$1.00 now, and we will begin your subscription with January 1, 1912, and mail you the book. Sample copy of the Bee Journal free. Address



GEORGE W. YORK & CO.,

117 No. Jefferson St., Chicago, Ill.

New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

THE A. I. ROOT COMPANY,

Syracuse, N. Y.

"Griggs Saves You Freight."

TOLEDO

IS THE PLACE all eyes are on now. Every beekeeper knows it is the largest shipping-center in the U. S. This explains the reason the CADILLAC AUTO. CO., of Detroit, are going to move their main plant here—to get shipping facilities no other city affords.

THE SWARMING SEASON will soon be upon you. Don't put off ordering too long, but let us serve you now.

Large stock of ROOT'S GOODS on hand, and a big car on the way. Get our prices on CLOVER SEEDS for spring sowing. We will save you money.

Honey and Beeswax Wanted

Send to-day for our catalog, and special wholesale prices on Poultry Feeds and supplies.

S. J. GRIGGS & CO.

25 N. Erie St., near Monroe

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources \$1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

**The Savings Deposit Bank
Company, . . Medina, Ohio**

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
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LEWIS BEEWARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
 Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
 Send for catalog. ENOUGH SAID.



Established 1885

We carry an up-to-date
 line of

BEEKEEPERS' Supplies

Send for our 64-page catalog that has been greatly enlarged and many new featured added. The fifty questions that are asked for so often by mail are answered on page 60, and will be most valuable to the beginner. Also some information is given on foul brood. We carry a full line of hives, sections, and all supplies commonly needed in an apiary. Our shipping facilities are good—we can fill your orders promptly.

Do not fail to write us or drop us card for our catalog, FREE. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co.

High Hill, Montg. Co., Mo.

GOLDEN ITALIAN QUEENS

\$1.00 each; six for \$5.00; twelve for \$9.00—
 untested and warranted.

J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

Prices: Tested, \$1.25; 5 for \$5.00; Breeders, each, \$5.00. Address

W. H. Laws, Beeville, Texas.

FRUIT-GROWING,

FARMING, GARDENING, and NUT-GROWING in the South. THE SOUTHERN FRUIT GROWER tells all about it. Price 50 cents per year. Sample copy free. Address

THE SOUTHERN FRUIT GROWER,

Dept. B. C.

Chattanooga, Tennessee.

Boston is the Shipping Center of New England

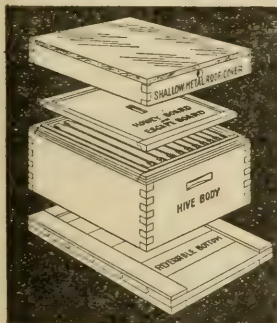
Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. . . Send for catalog.

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply made of $\frac{3}{4}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

A. C. WOODMAN CO., Grand Rapids, Mich.

Bingham Smokers

BINGHAM
 SELF-CLEANING
 BEE SMOKER



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, 3 $\frac{1}{2}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by

WITH OUR READERS AND ADVERTISERS

"Will you please suspend publication of our 'help wanted' ad. in GLEANINGS? We are simply swamped with replies, and every one, nearly, a desirable man. We wanted only one now; but we have so many replies it is a task even to acknowledge them." The above is a letter recently received from the Rocky Mountain Bee Company, who have used our columns on various occasions, and always, we believe, with satisfactory results.



To many it might seem that a two or three line ad. in the classified department of a paper like GLEANINGS would not be especially satisfactory in point of returns; but a trial of them will convince you that quite the opposite is the fact. Our readers can get a double value from the "classified advertising" department. In the first place, a careful perusal of these small advertisements in every issue will often result in the purchase of some honey, supplies, bees, or queens, or some poultry or eggs, at a very reasonable price. Through this department exchanges are made, positions secured and given, all with very little trouble or expense, and invariably to the satisfaction of the reader.



On the other hand, there is hardly a reader of our magazine who at some time or other hasn't occasion to sell something; and through what better medium can he make such sales than his own paper, where he may put his wares before those interested in the same general pursuits? The cost is small, and one or two insertions are generally sufficient to make sales. When you are cleaning up this spring, if you find a lot of things that are really good but that you have no use for, try offering them through the classified department of this paper at a reasonable price and turn them into money. It doesn't require any effort on your part. GLEANINGS does the work.



If you need help for your spring work, or if you haven't enough of your own work to do, you will find that GLEANINGS can help you out. A "help wanted" advertisement will bring responses from those who really want to work and are reliable; and if you are looking for a place either in an apiary or on a farm you will find our readers very responsive to this class of advertising.



It will pay our readers well to peruse the classified columns of every issue very carefully, and to make a liberal use of them whenever occasion requires!



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

Just a Minute!

While I am looking carefully after the Bee Supply Business in the three or four States which I claim as my own territory, I am aware that many readers of GLEANINGS, located a long distance from Indianapolis, have not considered the possibilities and advantages that are open to them in securing the Root Goods at factory prices from this shipping point. I have the facilities for handling more business, and a line from you with a list of your needs will bring an immediate estimate, and would not put you under any obligations. No order is too small for my best attention, and just this week I secured a 17-cent order on which I paid 25 cents dray charges and 7 cents for a shipping-box. I wanted that order, and my friend will want more goods later, and likely his neighbors will send their orders with his. Any complaints about my goods or methods are entirely out of the ordinary, while kind and appreciative letters are arriving constantly. I make mistakes, and I believe we all do at times, but they are always corrected with no expense to my patrons.

Walter S. Pouder.

Center, Ind.

Dear Sir:—I received my sections yesterday and they are all right. I appreciate the promptness and manner in which you corrected the mistake. My hives are first class, and you may count on me as a regular customer whenever I am in need of bee supplies. Again thanking you for your courtesy, I remain
Yours truly, CLARENCE McREYNOLDS.

BEESWAX. It pays to save it, and when you have it ready for shipment please remember me, and I will pay highest market price in cash or trade at any time.

My large illustrated catalog of Bee Supplies is free, and it contains valuable information for the beginner as well as for the expert.

WALTER S. POWDER, Indianapolis, Ind.

859 Massachusetts Ave.

When You Buy Lewis Beeware You Get —

Lewis Quality—which means that all Lewis Hives are made out of clear white pine, and Lewis sections made out of fine bright basswood. The material in these goods is the best obtainable, and selected by experts.

Lewis Workmanship—The Lewis factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has had thirty-five years of bee-supply experience, the superintendent of bee-hive department twenty-nine years; the superintendent of sections twenty-eight years. These and many other skilled men have a hand in all the Lewis goods you buy.

Lewis Packing—All Lewis Beeware is carefully and accurately packed. A patent woven wood and wire package, made only by the Lewis Company, is employed largely in packing. This makes the package light, compact, and damage-proof.

Lewis Service—Years ago all goods were shipped direct from the factory, with attending high freight rates and delays during the honey season. Now Lewis Beeware can be obtained almost at your own door. Over thirty distributing houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

G. B. Lewis Company, Manufacturers of Beeware, Watertown, Wisconsin

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

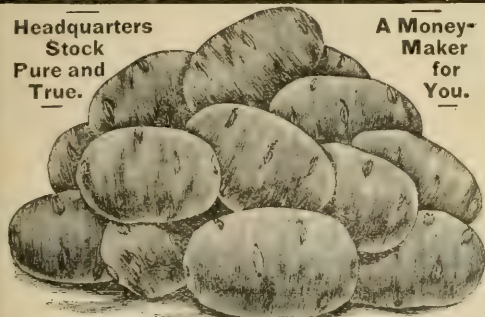
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POTATO COLLECTION ALMOST GIVEN AWAY

SPECIAL OFFER to Introduce. Only One-fourth Real Value.

20 BIG HILLS True Early Six Weeks Potatoes. Earliest, greatest, and very best table quality ever produced. Enormously productive. A real money maker, 40c.
50 Hills New Coffee. Ripens in 80 days. Saves health and \$10.00 to \$20.00 a year, 10c.
20 Varieties Radishes. Best in the world. Delicious Radishes all the season, 15c.
Grand Flower Collection. 300 Lovely, Easy-growing Varieties. A world of joy, 25c.
Packet Tree Ferns. Fragrant Floral Novelty. A marvel; very easily grown, 20c.
Potato Seed. Hybridized. Rarest of seeds. Wonderful curiosity. Will positively produce many new varieties of Potatoes. ~~40c.~~ These may make your fortune, 25c.

**Headquarters
Stock
Pure and
True.**



**A Money-
Maker
for
You.**

**A PERFECT
POTATO**

**MARVELS OF
EARLINESS
ENORMOUS
YIELDERS
BEST OF KEEPERS**



**Don't Miss the Best
of Bargains**

**I want the friendship
and trade of every
reader of Cleanings
Please show this to
your friends**



PRICE TO INTRODUCE will mail the entire collection named above (worth \$1.35) for only 30 cents. Two Collections for 55 cts. Four for \$1.00. Seed Catalog, Prem. List, Prem. Coupon, and Agents matchless terms, free with every Collection.

12 COLLECTIONS and Beautiful Am. Jeweled Watch Premium Ladies or Gents, (or Two Pair superb Lace Window Curtains) for \$3.00 prepaid. Both for \$6.00 order.

BOYS AND GIRLS. Get a fine Watch free. It is so easy. Simply show this offer and take your friends' orders. on't miss these splendid watches. You can get one in a day.

Address, A. T. COOK, Seed Specialist, HYDE PARK, N. Y.

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A course of forty lessons in the History, Form, Structure and Writing of the Short Story, taught by DR. J. BERG ESENWEIN, Editor of Lippincott's Magazine.

We are continually hearing from students and graduates notifying us of the receipt of checks for accepted manuscripts and expressing their appreciation of the course and of Dr. Esenwein's personal service.

Over 100 home-study courses under professors in Harvard, Brown, Cornell and other leading colleges.

250 page catalog free. Write to-day.

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500 Rooms

European Plan

Michigan Boulevard & 22nd St.

Chicago, Ill.



The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.
**M. & M. Hotel Company, Proprietors,
 T. V. Strain, Manager.**

Spray For Big Crops

Prevent blight, destroy insects which play havoc with your crops. 300,000 successful gardeners and orchardists will tell you—use—

Brown's Auto Spray

40 styles and sizes. For 5 acres of field crops, or 1 acre of trees, use Auto Spray No. 1—hand power, 4 gal. capacity—Auto Pop, non-clogging nozzle—all kinds of sprays with instant change. For large sprayers, Brown's

Non-Clog Atomic Nozzle

—the only nozzle made that will spray any solution for days without clogging. Adjustable for all sprays. Write for *Spraying Guide FREE*.

THE E. C. BROWN CO., 20 Jay St., Rochester, N.Y.

KITSELMAN FENCE



Sold direct to you at factory prices on **30 days trial**. Save the dealers profit. Farm, Hog and Poultry Fence at from **11½ CENTS A ROD UP**.

All wires are heavily galvanized 30 rod spool of Ideal galvanized Barbed Wire \$1.40. Write to-day for large free Catalog showing 100 different styles and heights of fencing

Box 21 KITSELMAN BROS. MUNCIE, IND.

Columbus Buggy

One Price—One Quality—Now

50,000 best Columbus Buggies ever made—exactly alike—one quality—one price—offered this year direct at only \$1 factory profit on each to us. We've reorganized whole factory to make this. 6 weeks Free Trial—2 year guarantee. Satisfaction or money back. Write. Big Facts Portfolio Free.

Columbus Carriage & Harness Co.
2033 So. High St., Columbus, O.

\$50

FOR SEWING LEATHER

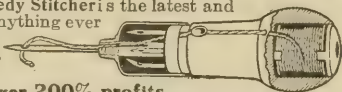
The Speedy Stitcher is the latest and best of anything ever offered for \$1.00.

Agents

make over 200% profits.

Send at once for catalog and terms.

Automatic Awl Co. 85 Gardner Terrace, Worcester, Mass.



Keep Ants Away

They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM

REGISTERED

and will stay away from beehives so protected. Write for circular.

Carbolineum Wood Preserv'g Co

Depot 103, Milwaukee, Wis.



BROWN FENCE

MOST durable fence made. Heaviest wires. Double galvanized. Stock strong. Chicken tight.

13 to 35c per rod.

Sample free. We pay freight
The Brown Fence & Wire Co.
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INDEPENDENCE

FROM the PEANUT FIELDS OF VIRGINIA TO THE ORANGE GROVES OF FLORIDA

THREE CROPS YEARLY

IN THE LAND OF MANATEE ON THE WEST COAST OF FLORIDA

Fortunes are being made in the 6 Sou. States traversed by the S. A. L. Ry. (Va., N. C., S. C., Ga., Fla., and Ala.) raising fruits and vegetables.

Low priced lands. Easy terms. Plenty of water. Healthful climate. In the Land of Manatee on West Coast of FLORIDA. Net \$500 to \$1000 per acre. Quick transportation to big markets. Beautifully illustrated booklet, Free. Write Now.

J. A. PRIDE, Gen. Ind. Agt.,
SEABOARD AIR LINE RAILWAY,
Suite 611, NORFOLK, VA.



Every Bee-keeper Should Own and Read "The Manual of the Apiary"

By PROF. A. J. COOK

This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany; 540 pages with good illustrations; bound in cloth. Price, by mail, \$1.15; \$1.00 by express or freight. . . . Order from the author,

A. J. Cook, Pomona College, Claremont, Cal.
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THE BEST LIGHT



A portable, pure white, steady, safe light. Brighter than electricity or acetylene, 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

MAKES AND BURNS ITS OWN GAS

"KANT-KLOC" SPRAYERS

Something New

Gets twice the results with same labor and fluid.

Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted. Booklet Free.

Rochester Spray Pump Co. 207 Broadway
Rochester, N. Y.

Spraying Guide Free





Better Fruit

SPRAY WITH PYROX

NO WORMS. Pyrox kills all leaf-eating insects, codling moth, canker worm and kindred pests.

NO SPOTS. Pyrox prevents or destroys fungous growths, scab, blight, rot, etc., thus producing beautiful,

PRIZE QUALITY fruit. Leading fruit growers and exhibitors like Hardy of N. H., Repp Bros., also Barclay, of N. J., Tyson of Penn., have used Pyrox for years. You know *their* record. Pyrox is **THE ONE BEST** spray; smooth, creamy, free from lumps, mixes easily in cold water, doesn't clog the nozzles. It sticks to foliage even through heavy rains, remaining effective for months, thus saving expense of respraying. All ready to use by adding water.

GOOD FOR ALL FRUITS AND VEGETABLES

SEND FOR FREE BOOK ON SPRAYING with prices, etc. Also see if your dealer has Pyrox on hand. Wise growers are ordering early.

Bowker Insecticide Co.

43 Chatham St., Boston.

We also ship from Baltimore and Cincinnati.

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BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
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The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$ to cover the cost.

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4 BUGGY WHEELS FREIGHT PAID STEEL TIRES \$8.75

With Rubber Tires, \$18.45. Your Wheels Rerubbered, \$10.30. I make wheels 3/4 to 4 in. tread. Tops, \$6.50. Shafts, 2.10; Repair Wheels, \$3.95; Axles \$2.25; Wagon Umbrella free. Buy direct. Ask for Catalog 47

SPLIT HICKORY WHEEL CO., 547 F St., Cincinnati, Ohio



THE Coward Good Sense Shoe

Children whose ankles "turn in" need the helpful support of the Coward Shoe.

Its wearing strengthens weak foot muscles, overcomes arch trouble, and prevents "flat foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

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Send for Catalog. Mail Orders Filled.
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JAMES S. COWARD

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Name Please? —Send a Postal to JOHNSON

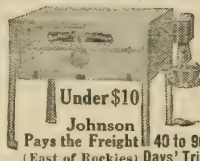
M. M. Johnson, Incubator Man, says to tell you his new book—now ready—tells more on really raising chickens than ever before—hundreds of new actual photographs—every page a poultry sermon.

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Makes biggest hatches.
Why pay two prices?
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Largest Incubator Factory in the World.



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Pays the Freight 40 to 80
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CATALPA Trees. True to Name. Ten times your money back for all trees that prove not true species. Also Catalpa seed. I have Cypress Trees, the most beautiful tree in the world.
H. C. ROGERS, Box 13 Mechanicsburg, Ohio

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WILLING

to try my plan and increase your profits on the sale of honey

Sold my 1911 crop for 25c per section. I'll send complete sample for 25c (coin) for postage and packing. You'll lose money if you don't. I am willing to help you.

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AGENTS! BIG PROFITS



The only Strop-
per that strops
any razor diag-
onally.

Guaranteed
for life.

Brandt's patented Autom-
atic Razor Strop. Autom-
atically puts a perfect edge on any razor.
old style or safety. Big seller. Every
man wants one. Write quick for terms,
prices, and territory.

F. W. BRANDT CUTLERY CO., 42 Hudson St., N. Y.

BUSH and BOG PLOW

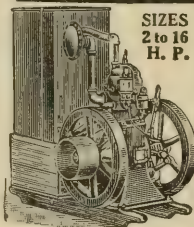


Clark's Reversible Bush and
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to subdue baked soil,
bogs or newly cleared
forests or stumpland.
Cuts a track 5 ft. wide,
9 in. deep. Has eight
24-inch cutlery steel
disks. Turns the
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stumps. Will kill any

bush or plant that grows and leave land true
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TRY A COLUMBIA!



SIZES
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On the hardest job you can
find. It won't buck or com-
plain; feed it on kerosene, gas-
oline, distillate or any liquid
fuel. Runs on natural gas as
well—no waste—no repairs.
Saves hired help—works night
and day. Try it 15 days—if it
don't suit, send it back 7,000
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Right now you save big money
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Write today for 1912 plan and
Free Book full of engine facts.
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GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Aspinwall Non-swarming Bee Hive!

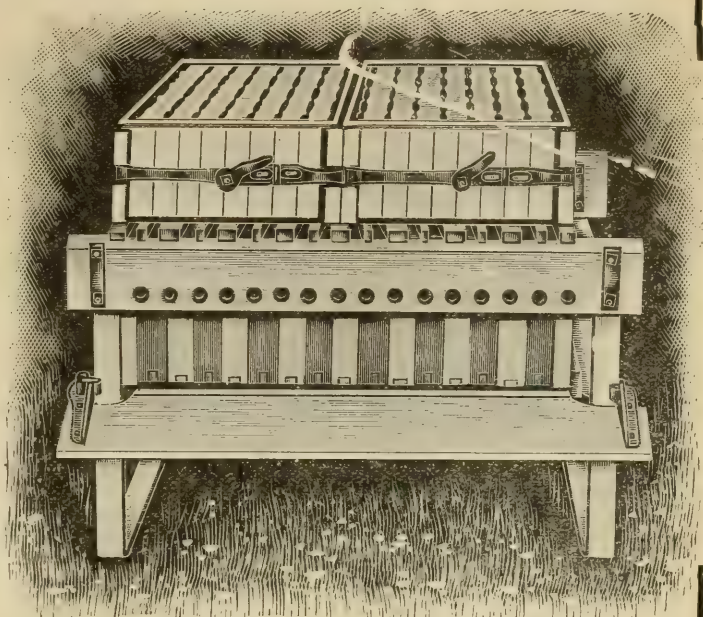
A practical success after 22 years of Experimentation. Another season has added to its success.

Evenly filled sections of Honey Produced without separators.

Will **DOUBLE THE YIELD** of Comb Honey.

Every Beekeeper should **SATISFY HIMSELF** as to **OUR CLAIM** by ordering at least one sample Hive and testing.

Descriptive circulars with prices mailed free.



ASPINWALL NON-SWARMING BEE HIVE.

Aspinwall Mfg. Co., 600 Sabin Street,
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World's Oldest and Largest Makers of Potato Machinery
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TO ride a Harley-Davidson means to ride in comfort. It is the only machine equipped with *Full-Floating* Seat (a device which takes up all the jolts and jars of a rough road) and *Free-wheel* Control (by means of which machine can be started and stopped by the mere shifting of a lever).

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YOUR HENS The Story of 25 Years
YOUR FARM with Poultry and Farmers
YOUR MONEY and Farmers will help many
Farmers get more eggs—
better prices; make more and
save more money; tell things
few folks know on making
money with hens. Find out
about America's Largest Line of Incubators and Brooders,
and get six poultry chapters written by Robert Essex him-
self—it's all in our Free Catalog—Write today. Address
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450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best
rooted stock. Genuine, cheap. 1 sample currant mailed for 10c.
Catalog free. LEWIS ROEBER & SON, Box A, Fredonia, N. Y.

Satisfactory Service and The Best Bee Supplies.

That is what we give our customers, and what we can give you if you will give us the chance. We keep a large and complete stock of Root's goods constantly on hand, and our largely increased facilities for handling goods make it possible to give every order the most prompt and careful attention. San Antonio is the shipping center of this section of the country. We can save time and freight, and get goods to you in better condition than to send to some more remote or less centrally located point. We base our claim for service, and the quality of our goods, not alone on what we think we can give you, but what our customers have had from us for years past. Just recently Mr. J. A. Simmons, of Sabinal, wrote us as follows:

As I have been using your supplies since March, 1903, I do not hesitate to commend you and the supplies you handle. Mistakes, a few have been made, but were cheerfully corrected. As I have nearly 500 colonies, I should know.

We have many more letters with equally good reports.

Catalog on request, also quotations made on large lists.

Weed Process Foundation.

We are running our new plant day and night and are able to supply the very best grade of foundation very promptly, and at prices which we are sure will please you. A customer writing a day or two ago about this says:

The foundation you worked for me has been received. Your work is perfect, and in those cartons it is so convenient for the retail trade.

We can use your wax at current prices if you have more than you want worked into foundation for this season's use.

Queens.

Untested, April 10 to May 10, \$1.00 each. Tested, March 1 to April 10, \$1.25 each. Selected tested, March 1 to April 10, \$2.00 each. Breeding queens, the very best, April 1 to December 1, \$5.00.

No-drip Shipping Cases.

A big stock of these on hand at low prices. Write for particulars. It will pay you to get our prices.

Topperwein & Mayfield,

Corner Nolan and Cherry Sts.

San Antonio, Texas.

Supposing You Did Have Winter Losses

Turn apparent failure into success with a

Hatch Wax-Press

Twenty to forty per cent of the wax is wasted by ordinary methods. Why not get all the wax with a Hatch press?

Cheap to operate.

A well-built machine.

Gets more wax.

Has "made good" everywhere.

Write us for our special delivered-to-your-station offer to beekeepers in Central and Eastern States. . . .

M. H. Hunt & Son . . . Lansing, Mich.

GOLDEN ITALIAN QUEENS

Bred from straight five-band and select Golden mothers, mated to select Golden drones, $3\frac{1}{2}$ miles from three-band yard. These queens are large, vigorous, and prolific; the bees gentle and hustlers. Purity of mating, safe arrival, satisfaction guaranteed. No bee-disease of any kind.

Untested.....	April 15 to July 1, one, \$1.00; six, \$ 5.00; twelve, \$ 9.00
Selected Untested.....	1.25 6.50 12.00
Tested.....	March 1 " 1.75 " 9.00 " 17.00
Select Tested.....	2.50 " 13.50 " 25.00

BREEDERS—Straight five-band, \$10.00; Select Golden, \$4.00 and up.

NOTE—For three-band queens at above prices, write J. M. Davis, Spring Hill, Tenn.

BEN G. DAVIS,

Spring Hill, Tenn.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs.
C. J. BALDRIDGE,
Homestead Farm.
Kendaia, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin packages, any quantity.
DADANT & SONS, Hamilton, Ill.

FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—1500 lbs. extracted honey (white, al-sike, and sweet clover) in 60-lb. cans, two in a case. First class. Price 7½ cts. per lb.
J. RIDLEY, Stevensville, Mont.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

WANTED.—Unfinished section honey at 10 cts. per lb., any grade of good flavor. Will remit on receipt of the same.
G. E. LEAVITT,
No. 7 Forstner St., Chattanooga, Tenn.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog.
E. W. PEIRCE, Zanesville, O.

WANTED.—To exchange Root's bee supplies, used slightly, and honey-extractor, for typewriter; or will sell for cash at sacrifice prices.
HENRY SCHMIDT, Valley View, Texas.

WANTED.—Bees in hives, cages, by the pound, or five-frame nucleus. Will accept carload or less. Southern beemen, respond.
F. B. CAVANAGH, Hebron, Ind.

Position Wanted

WANTED.—A position for the season of 1912 by a young man to work with bees—five years' experience.
ALTON O. CARLEY, Munith, Mich.

For Sale

FOR SALE.—Ten-frame hives, new and used, and other supplies. EDWIN EWELL, Litchfield, Mich.

FOR SALE.—New and second-hand 8-frame hives cheap. *
A. EHLERS, Carthage, Mo.

FOR SALE.—60-lb. cans, like new, 25 cts. per case, two in a case.
GEO. RAUCH,
5343 Boulevard, Guttenberg, N. J.

New Danzenbaker bodies with frames; second-hand bodies with new frames. Write.
A. H. KANAGY, Belleville, Pa.

New eight-frame Dovetailed hives at \$1.50, nailed and painted; or \$1.15 in flat, without supers, while they last.
GEO. E. KRAMER, Valencia, Pa.

FOR SALE.—Redwood hive-bodies, 25 cents each. Vogeler process comb foundation and poultry supplies. STANSFIELD, 3301 E. 14th St., Oakland, Cal.

FOR SALE.—20 1½-story eight-frame Dovetailed hives, good as new (13 have combs on wire) for \$30.
J. FREEMAN, 286 Park St., Chillicothe, O.

New crop alfalfa seed; 4 lbs. by mail, \$1.10; 50 to 100 lbs., 15 cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list.
F. A. GRAY, Redwood Falls, Minn.

Sweet-clover and alfalfa seed in any quantity. Write for prices.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce overstock. A. G. WOODMAN Co., Grand Rapids, Mich.

Pennsylvania beekeepers.—Having bought the supply business of Geo. H. Rea I am now ready to furnish a full line of Root's goods. Full car just in. Catalog free. THOS. H. LITZ, Osceola Mills, Pa.

Unhulled yellow biennial sweet-clover seed, 4 lbs. by mail, prepaid, \$1.20; 50 to 100 lbs. at 19 cts.; white hulled, 1 ct. higher; unhulled, 2 cts. lower.
R. L. SNODGRASS, Augusta, Kan.

At a sacrifice—a lot of Danz. hives, supers, etc.; will sell brood bodies separate if desired. Write for prices. Conover typewriter, \$8.00.
REV. H. W. BENDER, Schellsburg, Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO.,
(Successor to J. M. Jenkins.) Penn. Miss.

FOR SALE.—89 new ten-frame comb-honey supers, for 4¼ x 4¼ x 1½ plain sections, nailed, \$40.00; 72 shallow extracting-supers, 60 with drawn combs, wired frames, painted, \$45.00.
M. A. JONES, Carlinville, Ill.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand.
L. H. RANDALL, Medina, O.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla., the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama). Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

FOR SALE.—Ten 10-frame supers, $4\frac{1}{2} \times 1\frac{1}{2}$, with sections, with foundation or comb, each, 75 cts.; 9 cases, 2 60-lb. cans, 20 cts.; 7 plain division-boards, 4 cts.; 25 chaff division-boards, home-made, 3 cts.; 11 Alexander feeders, 13 cts.; 11 Coverdale feeders, home-made, 4 cts.; Modern Queen-rearing, imitation leather cover, 40 cts. Above used one year.
NORMAN F. GUTE, Owosso, Mich.

Bees and Queens

Our queens will please you. C. W. PHELPS & SON, dealers in beekeepers' supplies, Binghamton, N. Y.

WANTED.—Carload of bees for cash.
JOHN C. BULL, General Delivery, Hammond, Ind.

FOR SALE.—28 colonies of bees and fixtures.
J. G. CRISLER, Walton, Ky.

Golden Italian queens, ready to mail, \$1.00.
J. B. CASE, Port Orange, Fla.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

FOR \$250.—90 colonies of bees, portable house, tractor, supers, and hives for 120 colonies. Inspection invited.
JAMES ROAT, Canandaigua, N. Y.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

WANTED.—50 colonies to a carload of populous bees. Make lowest price on the same.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Full colonies of pure Italian bees in eight-frame dovetailed hives with Hoffman frames, at \$6.00 each.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Untested queens, Howe stock, selected to drones of a heavy honey-gathering strain. Ready in June. Untested, \$1.00; 6 for \$5.00. Circular on request.
D. G. LITTLE, Hartley, Ia.

QUEENS.—Mott's strain of Italians and Carniolans. Ten-page list free. Plans for introducing Queens, 15 cts.; How to increase, 15 cts.; both, 25 cents. Nuclei: bees per lb.
E. E. MOTT, Glenwood, Mich.

If any one has Italian bees for sale in eight-frame hives, with the frames running crosswise of the hive, please quote lowest price. I also want Italian bees on L. frames.

L. H. ROBEY, Worthington, W. Va.

Italian queens, untested, 75 cents; tested, \$1.25; breeders, \$5.00 each. Nuclei, with two frames, with untested queen, \$2.50.
E. M. COLLYER,
75 Broadway, Ossining, N. Y.

Golden Italian queens, 1911 rearing—tested, \$1.00; select, \$1.25; untested, about May, 70 cts. each; dozen, \$8.00. Send for circular and price list.

D. T. GASTER, Rt. 2, Randieman, N. C.

FOR SALE.—Golden untested queens at 75 c. each, or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00; select tested, \$2.00, or 6 for \$10.00. Safe arrival and perfect satisfaction guaranteed.
R. O. COX,
Box 8, Garland, Ala.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Italian queens of Superior strain, from grafted cells built in strong colonies. No foul brood or other disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY Co.,
College City, Cal.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Rood's bee supplies. Write for circular and catalog.
FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

A tested queen will save that queenless colony. Introduce her now. We can furnish them for \$1.00 each by return mail. Three-band Italians only. Send for price list.
J. W. K. SHAW & Co.,
Loreauville, La.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

FOR SALE.—Early "Italian" (Frofalcon) queens, March delivery, untested, \$1.50 each; April, \$1.25. Tested queens 50 cts. additional; selected tested, \$1.00 extra.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

QUEENS AND NUCLEI.—My strain of three-banded Italian bees are developed honey-gatherers. My entire time has been given to them during the last 12 years. Warranted queens, 75 cts. each.; \$8.00 per dozen; tested queens, \$1.00 each, \$10.50 per dozen. Three-frame nuclei with tested queen, \$3.50 each. Satisfaction guaranteed.
W. D. ACHORD,
Fitzpatrick, Bullock Co., Ala.

Goldens that are golden. Queens that produce golden-to-tip workers, hardy, and honey-getters; a race of bees that has taken 15 years to produce, and will please all who try it; have had as high as 300 lbs. surplus to live in one season. Will replace all mismatched \$1.50 queens. Pure matings guaranteed. Queens, \$1.00 to \$2.00. Send for booklet.
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

FOR SALE.—North Carolina-bred queens. Fine Italian queens of either strain, golden or red clover. I breed my queens from the very best honey-gathering strains obtainable. My breeder-queens' bees have produced record crops of honey; also my drone mothers have done some. I take all pains possible to breed a good honey-gathering bee and a long-lived prolific queen. I will begin to mail untested queens about May 1. Book your orders now, and send in your remittance when you want your queens. Untested, \$7.00 per dozen. No foul brood.
H. B. MURRAY, Liberty, N. C.

Real Estate

FOR SALE.—A good four-room house and barn on four lots in the city of Stanfield, Ore.; also 150 colonies of bees in a good locality for comb honey.
Address T. J. BARRINGER, Stanfield, Ore.

Virginia apple orchards pay big profits. \$350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, \$15 per acre and up. Write for beautiful booklet and excursion rates.

F. H. LA BAUME,

Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

Help Wanted

WANTED.—Assistant apiarist. Must be steady, honest, and willing to go to Colorado or Montana as needed.
THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

WANTED.—An experienced beekeeper for the season of 1912 to manage an apiary of 300 colonies run for comb honey. Must understand the business thoroughly. State wages wanted, and experience you have had.
EPH. B. NELSON, Box 169, Vale, Ore.

WANTED.—A capable middle-aged woman who has had some experience in bee culture to take charge of apiary department on a large farm in Northern Michigan. Small guaranteed salary to start, with percentage of profits. Applicant must, in addition, be competent to keep the general farm books, which would require a little time each day. To an energetic intelligent person who could appreciate a good independent home with pleasant surroundings, this opportunity offers permanency, with a living in it now, and a very good cash return to grow into in the future.
J. C. HOWE,
Ridgewood Farm. Old Mission, Mich.

Miscellaneous

Thirty-cent potato and seed bargain. Don't miss offer of A. T. Cook, the temperance seedsman, p. 13.

FOR SALE.—Choice strawberry-plants, 50 cts. per 100; \$4.00 per 1000.
MRS. EVA FERRO,
East Stroudsburg, Pa.

Good used 60-lb. cans at 10 cts. each; will accept honey or bees in exchange.
C. W. FINCH,
1451 Ogden Ave., Chicago, Ill.

FOR SALE.—1½ h. p. Associated Mfg. Co.'s gasoline-engine in good condition; \$26.00 takes it.
M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

Rubber stamps to order. Egg-daters, 60 cts. Leg-horns, W. Wyandotte breeder.
JEFF. MACOMBER, Gaylord, Mich.

Combine best features of all queen-rearing systems by using "Eureka Larva Transplanter," 50 c. See GLEANINGS, Dec. 1, 1910, page 765.
MARK W. MOE, 1716 Exposition Av., Denver, Col.

FOR SALE.—Holsman automobile — one of the reliable makes. Owner (a doctor) having bought a higher-powered car will sacrifice at \$135. Speak quick. The car is worth much more.
F. B. CAVANAGH, Hebron, Ind.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00.

J. F. MICHAEL, Winchester, Ind.

I. R. duck eggs, fawn and white brownies, 20 for \$1.00. White-egg strain.
SARAH WIDRIG,
Rt. 29, Burt, N. Y.

Golden-laced Wyandottes and Indian Runner ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50.
DR. D. OSCAR MEAD, Pinckneyville, Ill.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Am booking orders for White Indian Runner duck eggs — true I. R. type, and white; no sports; handsome and hardy. Also eggs from both light fawn and penciled strains. State which you want.
F. J. ARMSTRONG, Nevada, O.

Orders for eggs that will hatch, at 10 cts. each, for Indian Runner ducks, white and fawn; also for Buff Rock chickens; both standard stock, and from good laying strains. Write; want to tell you more about them, or place your order now.
J. RUDY ROEBUCK, Dalton, Ohio.

I have the typical Indian Runner ducks. They are the queens of all layers; and as for beauty, the artist's brush has never surpassed them. They stand preëminent to-day. My foundation stock is from the original winners at the Jamestown exposition. Pure-white eggs, 13 for \$1.00; 100, \$7.00. Satisfaction guaranteed or money refunded. This advertisement will be lived up to, to the letter.
ROBERT BIRD, Rt. 2, Pinckneyville, Ill.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northrup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

Poultry

Sicilian Buttercups. Eggs for hatching. Circular free.
D. S. DURALL, Hurdland, Mo.

Barred Rock eggs — Bred-to-lay strain; \$1.00 per 15. Catalog free.
J. W. DAIL, Cambridge, Md.

For utility and beauty, Buttercups unlike others. Eggs in season.
H. V. MEEKER, Earl, Toledo, O.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs — \$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100.
C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00.
S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock.
PIPER'S POULTRY PLANT, Elkville, Ill.

PARTRIDGE WYANDOTTES.—Extremely beautiful; adapted to any climate; heavy layers.
C. M. MYERS, Winchester, Ind.

Kellerstrass Orpington-Wycoff S. C. W. Leghorns. Birds reasonable. Eggs, \$1.50 to \$3.00 per 15.
CLAUD IRONS, Linesville, Pa.

S. C. White Leghorns, bred to lay. Free range. Eggs, 15, 75 cts.; 100, \$4.00.
HOMER ZIMMERMAN, Sugarcreek, O.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address
THE VAN DRUST FARMS, Cedar Grove, Wis.

FOR SALE.—Eggs of Crystal White Orpington (Kell.); beautiful white birds, winter layers, \$2.00 per setting. **MRS. RUDOLPH HASSLER,**
Rt. 3, Bloomington, Ill.

BUTTERCUPS.—Eggs from three pens of grand birds—15, \$3.00; 30, \$5.50; 100, \$15.00. Satisfaction guaranteed. **RIVERVIEW POULTRY FARM,**
Union City, Mich.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free.
GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Baby chicks, 9 breeds. Prices from 9 cents up; 100,000 chicks hatched per year. Catalog free. Over 6000 laying hens. **TAYLOR'S POULTRY YARDS,**
(Sales Dept.) Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. **W. O. Roudabush, Hagerstown, Md.**

Stock chicks' eggs ready for delivery: standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Eggs from Houdans, Buff Rocks, Indian Games, Silver Wyandottes, Buff Leghorns, Rose C. B. Leghorns. Eggs \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Bronze turkey eggs, \$2.00 per 9; \$4.00 per 22.
DALE HART, Box 19, Broadwell, Ohio.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$3.00 per 13; \$6.00 per 30, from thoroughbred stock; very handsome, very tame, very light feeders; lay large white eggs; the world's champion layers.
HENRY WOODWORTH, JR., Cheboygan, Mich.

Prize-winning S. C. R. I. Reds; thoroughbred White Orpington, Barred Rocks, Indian Runner ducks, fawn and white. Eggs and chicks.

DAVID M. HAMMOND,
Woodside Poultry-yards, Rt. 5, Cortland, N. Y.

Bee-keepers' Directory

Nutmeg Italian queens, leather color, after June 1, \$1.00. **A. W. YATES, Hartford, Ct.**

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 79 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912: beautiful, hustling, gentle workers. Send for price list to **E. E. LAWRENCE, Doniphan, Mo.**

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. **H. C. CLEMONS, Boyd, Ky.**

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

By OUR BUSINESS MANAGER

We have on hand a limited number of fine untested Southern-bred queens which we can dispose of as select untested at \$1.25 each until the present stock is exhausted. This is your chance to get an exceptionally good queen to build up your colony for the best work this summer. Do not delay ordering, for the stock is limited.

Convention Notices.

The California State Beekeepers' Association will commence on the first of May to publish a monthly crop and market report. We should like to exchange this report for a local report of every beekeeping organization in the United States and Canada. We believe the benefit will be mutual. Please address our secretary, A. B. Shaffner, 3906 West First St., Los Angeles, Cal.

The spring meeting of the Colorado State Beekeepers' Association will take place in Montrose, Col., May 10th and 11th. The Montrose County Beekeepers' Association will be the host of the State Association at this meeting. It is desired that every beekeeper on the eastern side of the mountains take the trip to Montrose and see this part of the country. Homeseekers' rates will apply on the Denver & Rio Grande from Colorado Springs, Denver, and Pueblo. These rates are good for thirty days. I would suggest that the way to go is via Marshall Pass, and return by way of Grand Junction over Tennessee Pass. More of the country can be seen this way. The western-slope beekeepers in Montezuma, La Plata, Montrose, Delta, Mesa, and Garfield counties are urged to turn out in full force. This will be a live meeting, and you will regret it if you do not attend.

WESLEY FOSTER, Sec.

Books and Magazines.

PRINCIPLES AND PRACTICE OF POULTRY CULTURE.

The above is the title of a book by John H. Robinson, editor of *Farm-Poultry*, Boston, Mass. While designed for classes in agricultural colleges it aims to give the student a concise and complete statement of essentials, and to provide for the teacher a textbook which is easily adapted to long courses, short courses, and extension courses. While omitting nothing, it gives full scope to the teacher who desires to expand the treatment of any topic. Poultry culture is treated as a branch of agriculture and as a necessary permanent feature. Attention is directed to the general likeness of domesticated land birds, and the relations of this fact to good poultry practice are emphasized. In the discussion of such topics as feeding and breeding, the intimate association of the scientific and the practical in everyday work is made clear. The book is elaborately yet appropriately illustrated. More than 500 cuts from photographs and drawings, systematically arranged with reference to the text and to each other, show graphically the evolution of methods and systems of poultry-keeping, the development and range of types of structures for poultry, common appliances and the methods of using them, the characteristics of the different kinds, classes, breeds, and varieties of poultry, etc. The general list of references includes all important poultry books and bulletins. The glossary is carefully compiled, and includes all words used in the text in a technical sense. Though written primarily for students, the book meets all the requirements of a general treatise on poultry culture.

The book is published by Ginn & Co., Boston, Mass. Price \$2.50.

The 25-Year Car

By R. E. Olds, Designer

Reo the Fifth

Is the only car based on 25 years spent in car building.

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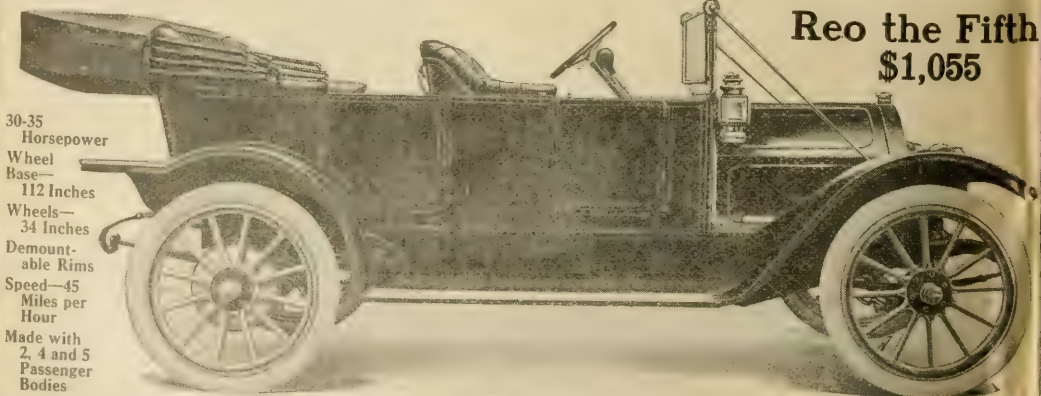
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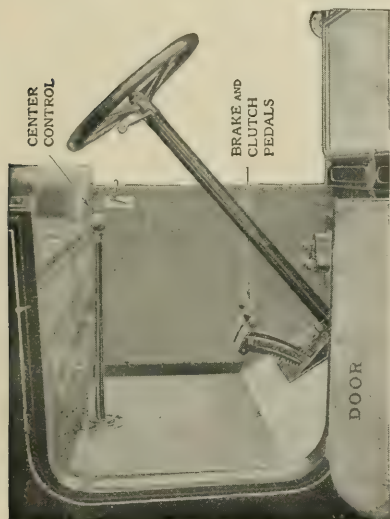
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Cleanings in Bee Culture

MAY 6-1912
Agricultural
College



VOL. XL. • MAY 1, 1912, NO. 9.

GET THESE MONEY-MAKING SECRETS with FARM JOURNAL



Is this cock property held? "Poultry Secrets" tells how to carry fowls, and many other secrets far more important.

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In May, 1910, Robert bought 2300 day-old chicks. He spent just one week studying the methods now given in this book. This was his only preparation for the business. Result this "greenhorn" raised 95 per cent of all his chicks—a most uncommon record! Of these, 1350 proved to be pullets. In less than seven months he was getting 425 eggs daily, and selling them at 58 cents a dozen. His feed cost averaged \$4.00 a day, leaving him **OVER \$17.00 A DAY PROFIT**—and this before *all* his pullets had begun laying.

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"I think your Egg-Book is a wonder," says **C. P. SHIREY**, Pennsylvania.

"The **FARM JOURNAL** beats them all," writes **T. H. POTTER**, Penn'a. "Every issue has reminders and ideas worth a year's subscription."

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HORSE SECRETS exposes the methods of "bishops," "plugging," cocaine and gasoline doping, and other tricks of "kypes" and swindlers, and enables any one to **TELL AN UN-SOUND HORSE**. It also gives many valuable training, feeding, breeding, and veterinary secrets.

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CORN SECRETS, the great **NEW** hand-book of Prof. Holden, the "Corn King," tells how to get ten to **TWENTY BUSHELS MORE PER ACRE** of corn rich in protein and the best stock-feeding elements. Pictures make every process plain.

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Owing to the ill health of our Chicago Manager, Mr. York, he is locating on the Pacific coast, and Mr. H. S. Duby, of St. Anne, Ill., just south of Chicago, takes charge of our branch matters in addition to his present line of bee and poultry supplies. All mail which has been addressed to our branch at 117 North Jefferson Street is forwarded by main Chicago Office and received in St. Anne by Mr. Duby as soon as the carrier would deliver in Chicago. So no time will be lost in filling your orders. St. Anne, Ill., is at the junction of the Chicago and Eastern Illinois Railway and the Big Four Division of the New York Central Railway systems, affording the fastest deliveries with lowest freight rates. Send your orders to

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In nearly every foreign country we have an established distributor, and can supply the wants of foreign bee-keepers everywhere. In such localities as we are not represented, are always glad to take up the matter with those desiring to handle goods.

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OUR RED CATALOGUE, the most logically arranged catalog ever published, sent postpaid. Simplified Beekeeping, a concise beginners' treatise, free.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

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Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 1½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 1½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, April 18. **BLAKE-LEE CO.**

DENVER.—We have no comb honey to quote. Our market is entirely cleaned up. Our jobbing quotations on white extracted are 9 cts.; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, April 19. **F. Rauchfuss, Manager.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, April 17. **WALTER S. POWDER.**

ALBANY.—The honey market is nominal, there being no comb honey here now, and extracted is very slow at any price. We are selling considerable sugar to beekeepers now, which indicates that bees have not wintered well. The greatest call is for lump or cube sugar, this being more economical for feeding than a loose sugar, as the bees do not waste it in feeding.

Albany, April 20. **H. R. WRIGHT.**

ZANESVILLE.—There has been practically no alteration in market conditions since our last quotations, and prices are about as before—for best white comb, 20 cts. in one or two case lots; larger quantities proportionately less. Best white extracted in 60-lb. cans brings 11 to 12. Producers are receiving for beeswax 29 cts. in cash or 31 in exchange for bee supplies.

Zanesville, O., April 17. **E. W. PEIRCE.**

KANSAS CITY.—Our market is almost cleaned up on both comb and extracted honey. There has been no change in prices since our last. We quote No. 1 white comb honey in 24-section cases, \$3.25; No. 2 ditto, \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 9; amber, 7½ to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.
Kansas City, April 22.

CINCINNATI.—The market on comb honey is about cleaned up, and there is a very light demand. The demand, it seems, has fallen off considerably. Extracted white, in 60-lb. cans, brings 10 cts.; light amber, as above, 8½. There is also a very light demand for extracted. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, April 17. **C. H. W. WEBER & CO.**

Continued on page 5.

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By proving that our MUTH SPECIAL and IDEAL METAL-COVERED DOVETAILED HIVES are better than any on the market.

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Send for our catalog.

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The season has opened up more favorably, after all, than many beekeepers anticipated, and many find themselves unprepared for the swarming period and honey-flow which is just before them. Extra hives just now may mean almost a double output of honey, and we can get these hives to you at once. We have a large and complete stock of all kinds and combinations, and can fill your order the day it is received.

If you are producing comb honey the Danzenbaker hive will give you most excellent satisfaction. Reports from large users of this hive show that with it a very large percentage of fancy comb honey may be produced; and with a little extra protection it is an excellent wintering hive.

Another comb-honey hive that is very popular this season is the Buckeye double-walled hive. This is the new movable-bottom pattern, and the double-wall feature offers protection, not only in the winter, but at all seasons. This is particularly valuable in the early part of the season when sudden changes of temperature are apt to have disastrous results.

For the production of extracted honey there is no better hive than the regular ten-frame dovetailed pattern. This has been a standard for years, and will admit of a number of changes and combinations to suit local conditions and the season.

We have also, of course, our usual stock of all other supplies, and can handle your order for any item listed in our catalog with our usual promptness and dispatch. We are better equipped than any other dealer in this section to give special attention to hurry orders, and solicit a trial of our goods and our service.

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Cincinnati, Ohio

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We can now supply fresh new seed of 1911 crop in all but the annual yellow at following

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Hulled White, Imported seed	27c	24c	23c	22c
Hulled White, Domestic seed	23c	20c	19c	18c
Unhulled White (<i>Melilotus alba</i>) per lb.	16c	14c	13c	12c

The prices are all subject to market changes.

As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference.

The A. I. Root Company, Medina, O.

Honey Markets, continued from page 2.

CHICAGO.—The trade in honey this month has been exceedingly light in both comb and extracted, with a steady market of 17 to 18 cts. for the fancy grades of comb, off colors bringing from 1 to 5 cts. per lb. less, even while in good condition and sections well filled. There is a good deal of this grade of comb honey on this market. It seems difficult for producers to realize that it could not have been sold during the winter, as the neighboring States had very little pure white honey from the yield of 1911. They assume that people would use the other in the absence of white; and inquiries are coming frequently, wanting to know why they have not had returns on their consignments; but it is simply impossible to force this grade and color of honey in a city market. Extracted white sells at from 8 to 9, and ambers at from 7 to 8. Beeswax is steady, and sells from 30 to 32.

Chicago, April 17. R. A. BURNETT & Co.

LIVERPOOL.—Since our last report, our market for honey and beeswax has been very quiet. The demand for honey has been limited, but stocks of Chilian are now quite exhausted. There have been retail sales of Californian at late rates, and for a recent arrival of West Indian \$6.96 to \$7.92 is quoted as to quality. Lately 500 barrels of Chilian average, pile 3, have been sold at \$5.88, c. i. f., April-May shipment, and a further 200-barrel offer at \$6.24. Stocks of other descriptions have sold at different quotations as follows: Haitien, \$5.76 to \$7.30; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. Of beeswax, 20 bags sold at \$34.48 to \$39.02; \$37.48 to \$41.12 is now quoted. Stocks are very small. Sales of P. A. Q. Chilian for shipment are reported at \$36.28, c. i. f., net cash. Quotations for other descriptions are as follows: African, \$32.16 to \$34.48; Jamaican, \$37.72; West Indian, \$32.64 to \$36.28.

Liverpool, April 15.

TAYLOR & Co.

(Organized 1870)

National Beekeepers' Association

Objects

The objects of this Association shall be to aid its members in the business of beekeeping; to help in the sale of their honey and beeswax; and to promote the interests of beekeepers in any other direction decided upon by the Board of Directors.

Officers

President—George W. York, Chicago, Ill.
Vice-Pres.—Morley Pettit, Guelph, Ont., Can.
Secretary—E. B. Tyrrell, Detroit, Mich.
Treasurer—N. E. France, Platteville, Wis.

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J. M. Buchanan, Franklin, Tenn.

Annual Membership dues \$1.50, one-third (50 cents) of which goes to the local branch where such branch is organized.

Send dues to the Secretary, E. B. Tyrrell.

CONTAINERS

. . . FOR . . .

Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . . Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

Get full information,
prices, and samples.

The A. I. Root Company
Medina, Ohio

ST. LOUIS.—Since our previous report, April 5, the honey market has remained practically unchanged. The stock of comb honey is very small, and there is hardly any demand for it. The quotations are more or less nominal. The stock of extracted honey is also small, with a limited demand. We quote fancy white comb honey at 16 to 17; No. 1 white, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light-amber California brings 8½ to 9; light amber, Southern, 8 to 8½ in five-gallon cans; Southern in barrels and half-barrels, light amber, 7 to 7½. Dark sells at less. Beeswax, prime, brings 30 cts.; impure and inferior, less.

R. HARTMANN PRODUCE COMPANY.

St. Louis, April 22.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

CIRCULATION 35,000.

Issued Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.
 SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25; page, \$50.
 Preferred position, inside pages, 30 per cent additional.
 Preferred position, inside cover, 50 per cent additional.
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 Bills payable monthly.
 No medical or objectionable advertising accepted.
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 Forms close 10th and 25th.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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For BEGINNERS and OLD-TIMERS

BEE BOOK

A full description of our 1912 line of Bee Supplies, together with prices. The book contains many helpful hints on raising bees. It will interest both beginners and experienced beekeepers. In the back is a list of questions and answers touching the important points of bee culture. It contains 64 pages of useful matter pertaining to apiculture. Get one FREE.

How to Make Money in Bees

This splendid booklet contains hints for beginners that make the way easy to get started in bee culture. It tells how to select the bees and equipment, and guides him in such matters as swarming, hiving, feeding, wintering, guarding against diseases, etc. No beginner should start without one. It will cost nothing but a stamp to get it. The book is FREE.

Blanke Mfg. & Supply Co.

Blanke Bldg., St. Louis, Mo.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

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25
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PRACTICE

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Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts.

Patent Counsel of
The A. I. Root Co



Why Not REAR Your Own QUEENS?

Doolittle's "Scientific Queen-Rearing" and the
American Bee Journal for 1912—Both for Only **\$1.00**

Every Bee-keeper Should Have Both Book and Bee-Paper.

D^{OOLITTLE'S} "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now before the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1912, for only \$1.00, is certainly a big bargain for you. Send the \$1.00 now, and we will begin your subscription with January 1, 1912, and mail you the book. Sample copy of the Bee Journal free. Address

GEORGE W. YORK & CO.,

117 No. Jefferson St., Chicago, Ill.

The Welcome Honey-flow...

to which you have been looking forward through the long dreary months of winter, is at last at hand. Are you ready to take full advantage of it? Unless, with wise forethought, you have already purchased the hives, sections, foundation, or other supplies, you will probably require, it is high time that your wants crystallize into an order. Forecasts are at best uncertain, but present indications are for a good honey-flow, and its value to you will depend upon the degree of preparation you have made for it. There is yet just time to secure the necessary supplies and properly arrange your equipment. Longer delay may mean regrettable loss.

The following letter will give you a tip as to where you can secure best goods, best treatment, and most prompt delivery.

Mr. E. W. Peirce,
Zanesville, Ohio.

The bee-supplies were received March 4th. The February cash discount was received also. Many thanks for promptness and kind treatment. Yours truly,

FRED BAILEY.

Thornton, W. Va.

Mr. Bailey is but one of hundreds of beekeepers who find in ROOT QUALITY—PEIRCE SERVICE absolute satisfaction. If you are not already of this number, you will be eventually.

A postal card addressed as below will bring you a large illustrated catalog.

EDMUND W. PEIRCE

136 West Main St., Zanesville, Ohio

Baby Chicks

Nice big strong vigorous chicks is what we ship. Safe arrival guaranteed. Price 8 to 15 cts. each; 100,000 for sale this season. Catalog free.

JOS. A. BLUM & CO., Dept. 3, Chatfield, Ohio.

BARGAINS IN BEE SUPPLIES

The recent death of James Heddon leaves us with a large amount of Bee Fixtures and Supplies of almost every description, which will be sold at a great sacrifice. Write us for inventory and write at once, as these goods will not last long at the prices we are closing them out at.

James Heddon's Sons, Dowagiac, Michigan

GOODS ordered now will reach you in time for your first swarms. More and more are our customers adopting the plan of ordering early.

Yes, we will ship at once, and send Root's Goods only, and at their prices. Save time and freight charges by ordering at Root's Headquarters in Michigan.

M H. Hunt & Son . . . Lansing, Mich.

General Agents

Opposite Lake Shore Depot

DOOLITTLE & CLARK

Are now booking orders for fine Italian Breeding Queens to be sent out any time after May 1. . . . These queens are choice, and mated to select drones. Prices: \$2.50, \$5.00, and \$10.00.

MARIETTA, ONONDAGA COUNTY, NEW YORK

APIARIAN SUPPLIES AND BEES.

This is our 21st year in the business. Let us quote you special prices on goods needed. Catalog free. Discount sheet to dealers. Colony of bees with tested Italian queen in complete hive, \$10.00.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

ITALIAN AND CARNIOLAN QUEENS!

Nuclei, Bees by Pound. Ten-page descriptive list free. Un-tested, \$1.00. Natural R. C. Golden from imported stock, select untested, \$1.10; tested, \$1.50. Leaflets, "How to Introduce Queens," 15c; "Increase," 15c; or both for 25c.

E. E. MOTT, Glenwood, Mich.



CARNIOLANS BREED BEST

DURING SPRING MONTHS of any race of bees. This is of immense importance. Bees must be gotten strong early. *Success in honey production can come only by having colonies strong when harvest opens.* Ask for "Superiority of the Carniolan Bee," giving full description, prices of queens, etc. **IT'S FREE.**

ALBERT C. HANN, PITTSSTOWN, N. J.

Scientific Queen-breeder



THE SWARTHMORE APIARIES

are now booking orders for early delivery

PEDIGREED Golden Queens

Swarthmore, Pennsylvania

WANTED EVERY BEEKEEPER TO INVESTIGATE..... THE BOYUM FOUNDATION-FASTENER



Pat'd Aug. 1, 1911

Merits and Claims: Takes four sections at one time, while in section-holder or not; can put in corner starters; can put in top and bottom or corner starters at one operation. Fastens the starters by "soldering" them to the wood. No handling of sections separately. Simple, easy, and handy to operate. Does better and faster work. Never too warm for the starters. No fastening to table, wall, or floor; no treadle, no levers; no smoky blades; no dripping of wax on lamp, table, floor, or clothing. Saves time and work. Insures better-built combs. It is strictly up to date. Price complete with lamp (25c burner), \$1.30; without lamp, 85c. Sizes other than 4x5 and 4 1/4 square, 20c extra. State for what style of sections wanted. Remit by money order. Manufactured by

The Boyum Apiaries Company, Rushford, Minn., U. S. A.

LEWIS BEEWARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.



Established 1885

We carry an up-to-date
line of

BEEKEEPERS' Supplies

Send for our 64-page catalog that has been greatly enlarged and many new featured added. The fifty questions that are asked for so often by mail are answered on page 60, and will be most valuable to the beginner. Also some information is given on foul brood. We carry a full line of hives, sections, and all supplies commonly needed in an apiary. Our shipping facilities are good—we can fill your orders promptly.

Do not fail to write us or drop us card for our catalog, FREE. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co.

High Hill, Montg. Co., Mo.

GOLDEN ITALIAN QUEENS

\$1.00 each; six for \$5.00; twelve for \$9.00—
untested and warranted.

J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

will be ready to take care of your queen orders, whether large or small, the coming season. Twenty-five years of careful breeding brings Laws' queens above the usual standard; better let us book your orders now.

Tested queens in March; untested, after April 1st. About 50 first-class breeding-queens ready at any date.

Prices: Tested, \$1.25; 5 for \$5.00; Breeders, each, \$5.00. Address

W. H. Laws, Beeville, Texas.

FRUIT-GROWING,

FARMING, GARDENING, and NUT-GROWING in the South. THE SOUTHERN FRUIT GROWER tells all about it. Price 50 cents per year. Sample copy free. Address

THE SOUTHERN FRUIT GROWER,

Dept. B. C.

Chattanooga, Tennessee.

Boston New England

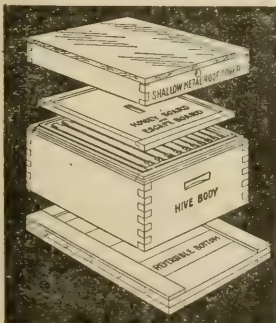
Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. Send for catalog.

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply made of $\frac{3}{8}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

Bingham Smokers

BINGHAM
BEE CLEANING
BEE SMOKER



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, $\frac{3}{8}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by

A. G. WOODMAN CO., Grand Rapids, Mich.



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

A Pleased Patron

Is the result when he gets his supplies here; and while winter losses have been severe the outlook seems to be brightening up quite a little since the advent of favorable weather conditions. I presume we all get discouraged at times, and that there is no occupation entirely free from its drawbacks. I myself have experienced it again and again; but the darkest hour is just before day and at such times I just roll up my sleeves and work a little harder and say to myself, "They have gotty quit a kickin' my dawg aroun'."

Much new material has recently been added to my stock of goods, including a stock of foundation fresh from the mills. My orders for bee-supplies are being filled with the usual promptness; and if I have any dissatisfied customers they are saying nothing about it. If interested in anything pertaining to the bee industry I wish you would write me about it, and to reply will be one of my pleasures. Everything pertaining to the bee yard is here, and I am at your service. My catalog is free, and contains valuable information; but after you receive it you may wish to make some further inquiries and to take care of these inquiries is my mission.

BEESWAX.—When you have it ready please remember me and I will pay highest market price, cash or trade, and you will find me prompt.

Send your name on a postal card for new catalog.

WALTER S. POUDER, Indianapolis, Ind.

859 Massachusetts Ave.

New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

"Griggs Saves You Freight."

TOLEDO

IS THE PLACE all eyes are on now. Every beekeeper knows it is the largest shipping-center in the U. S. This explains the reason the CADILLAC AUTO. CO., of Detroit, are going to move their main plant here—to get shipping facilities no other city affords.

THE SWARMING SEASON will soon be upon you. Don't put off ordering too long, but let us serve you now.

Large stock of ROOT'S GOODS on hand, and a big car on the way. Get our prices on CLOVER SEEDS for spring sowing. We will save you money.

**Honey and
Beeswax Wanted**

Send to-day for our catalog, and special wholesale prices on Poultry Feeds and supplies.

S. J. GRIGGS & CO.
25 N. Erie St., near Monroe

A REQUEST for our free booklet carries with it no obligation to open an account. All we ask is an opportunity of explaining clearly why your savings should earn 4%—the rate paid by the savings banks of Ohio for the past 65 years — and why your money will be absolutely safe if sent by mail to this institution, with assets of nearly—

ONE MILLION

and under the supervision of the strict laws of the State of Ohio.

**The Savings
Deposit Bank
Medina, Ohio**

Cut and
mail this
coupon
TO-DAY

Send me your free booklet.

NAME

ADDRESS

STATE

Nature Education and Recreation

For Boys and Girls:

NATURE AND SCIENCE (of St. Nicholas Magazine), - Per Year, \$3.00

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THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00 \$4.00

BOTH, ONE YEAR, \$3.00; sample of either, 10c.

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"Three Kingdoms," the handbook of the AA - - - Postpaid, .75

For Plants:

Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

BEEKEEPERS!

The swarming season and honey flow are close at hand. You should see that you have the necessary supplies in readiness to meet these conditions. Look up your stock at once and send me a list of the supplies you need. I have a large stock to draw from to handle your orders for hives, sections, comb foundation, etc., and they are fresh from the factory at factory schedule of prices.

**Be Sure You Have
My 1912 Catalog!**

I have a general line of The A. I. Root Company's goods constantly on hand, and can fill your orders promptly and satisfactorily. Beeswax taken in exchange for supplies or cash.

**ITALIAN BEES AND QUEENS
IN THEIR SEASON**

EARL M. NICHOLS

Successor to W. W. Cary & Son

Lyonsville, . Massachusetts

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

Hamilton, Illinois

COME SOUTH
—TO—
America's Market Gardens

Be healthy, happy and independent, under clear skies in a progressive country, raising **GRAPE FRUIT, ORANGES, ETC.** Fruits and vegetables are grown to perfection in the Six Southern States (Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama), traversed by the Seaboard Air Line Railway,

**FROM THE PEANUT FIELDS OF VIRGINIA
TO THE ORANGE GROVES OF FLORIDA**

Fertile land is now cheap—\$10.00 per acre and up, but will soon advance. Every inducement is offered to the man of limited means. Farms can be bought on easy terms. Low freight rates—quick transportation to the big markets. Good roads, schools and churches. Plenty of water—ideal climate the year 'round, no extreme heat or cold—high class labor. We want more good people, we have a big country full of natural advantages, close to large towns—not in a wilderness. An investment in Real Estate here is absolutely safe. Ten acres will make you independent. Hundreds of satisfied settlers are becoming wealthy, and enjoying life. You can do the same.

In the land of Manatee on the West Coast of FLORIDA you can raise two to three crops a year—net \$500 to \$1000 an acre.

Build a Home for your Family NOW. Give them the many advantages which were denied you. For handsome booklet and literature, write at once to:

**J. A. PRIDE, Gen. Ind. Agt.,
Seaboard Air Line Railway,
Suite 611, NORFOLK, VA.**

THE BEST LIGHT

makes and burns its own gas. Costs 2c. a week to operate. No dirt, grease nor odor. A pure white light, more brilliant than electricity or acetylene. None other so cheap or effective. Agents wanted. Write for catalogue and prices.

THE BEST LIGHT CO.
306 E. 5th Street, Canton, O.

BEST BY TEST

Keep Ants Away

They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM
REGISTERED

and will stay away from beehives so protected. Write for circular Carbolineum Wood Preserving Co Depot 103, Milwaukee, Wis.

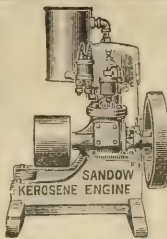
Sandow \$42.50

2½ H. P. Stationary Engine — Complete

Gives ample power for all farm uses. Only three moving parts — no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses kerosene (coal oil), gasoline, alcohol, distillate or gas. Sold on 15 days' trial. **YOUR MONEY BACK IF YOU ARE NOT SATISFIED.**

A 5-year iron-clad guarantee. Sizes 2 1-2 to 30 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (160)

Detroit Motor Car Supply Co.,
72 Canton Ave., Detroit, Mich.



**Hello,
Mary,
Can You
Go to Town
With Me,
Tomorrow?**

THINK what it means to be able to take down the receiver and talk to your friends, to get market and weather reports, to rush a repair part for a broken machine from the nearest dealer. You can get your corn to town when the price is right. You can call the doctor instantly in case of sudden illness or accident. You can order supplies that you need in a hurry. You can avoid loss of crops by storm. Make every day longer with more money earned.

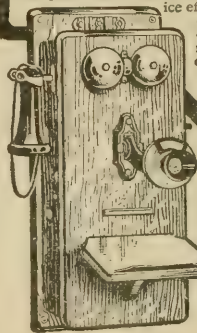


Stromberg-Carlson INDEPENDENT TELEPHONE

Satisfaction Guaranteed or Money Refunded

For years Stromberg-Carlson Telephones have been making farm life safer, more profitable, brighter and pleasanter. Today over a million and a half instruments are giving complete satisfaction with bigger installations going in every day.

Local and Long Distance Transmission is assured with a Stromberg-Carlson Transmitter—the vital part—which has an unexcelled record for service efficiency.



Book Free telling how ten men or more can have an independent system of their own. Write for it today—ask for Edition No. 21.

Stromberg-Carlson Telephone Mfg. Company

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Toronto, Can.
Kansas City,
Mo.
Los Angeles,
Cal.
San Francisco,
Cal.
Seattle Wash.

Type
No.
896

One
of the
many
shown
in the
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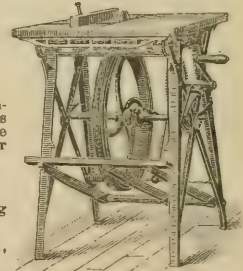
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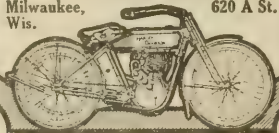


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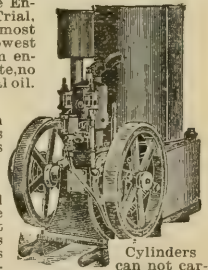
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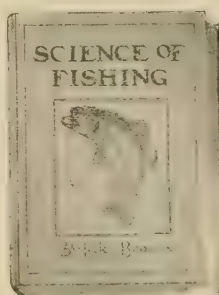
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The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

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In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Do-

ing It..... 65

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Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Light extracted table honey. Must be of good flavor. JOHN G. LITTLE,
2728 Gosworth Road, Victoria, B. C.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—Bees in hives, cages, by the pound, or five-frame nucleus. Will accept carload or less. Southern beemen, respond. F. B. CAVANAGH, Hebron, Ind.

Position Wanted

A young man of good habits wants a position as assistant apiarist, or apiarist and fruit culture combined. Address H. E. KAUFFMAN, Mattawana, Pa.

WANTED.—A position in an apiary. I do not use tobacco nor liquor. If you need help, write me, I can work with chickens as well as with bees. VERNON E. WALLACE,
437 N. Morris St., Waynesburg, Pa.

WANTED.—An apiary or system of apiaries on shares, or on salary, by an experienced beekeeper and his wife—lifelong beekeepers and farmers; recent college graduates; scientific training; up-to-date methods; horticulture; Root code of morals; high-class references. N. O. B.,
9077 care of GLEANINGS, Medina, Ohio.

WANTED.—Position as manager or assistant manager of an apiary. Am 29 years old; speak Bohemian and German, and am learning English; have had years of experience as a beekeeper, and am acquainted with American queen-rearing methods. ADALBERT SUSS,
Gr. Seelowitz, Moravia, Austria.

For Sale

FOR SALE.—New and second-hand 8-frame hives cheap. A. EHLERS, Carthage, Mo.

FOR SALE.—20 8-frame hives cheap. Photo free. CHAS. E. SWEET, Fulton, Mich.

FOR SALE.—Empty second-hand 60-lb. cans, 25 cts. per case of two cans; 100 for \$22.50. E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce overstock. A. G. WOODMAN CO., Grand Rapids, Mich.

For 30 days more, best sections on earth, \$4.00 per 1000; best white-pine hive with one super, \$1.30. H. S. DUBY, St. Anne, Ill.

FOR SALE.—60-lb. cans, like new, 25 cts. per case, two in a case. GEO. RAUCH,
5343 Boulevard, Guttenberg, N. J.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Drawn combs and foundation in frames. Send for price list. D. G. LITTLE, Hartley, Iowa.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla.), the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama. Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

Bees and Queens

WANTED.—Carload of bees for cash.
JOHN C. BULL, Rt. 8, Valparaiso, Ind.

Well-bred bees and queens. Hives and supplies.
LINCOLN McCARGAR, Los Gatos, Cal.

FOR SALE.—Untested Italian queens, \$1.00; 6 for \$5.00.
E. A. SIMMONS, Greenville, Ala.

Golden Italian queens, ready to mail, \$1.00.
J. B. CASE, Port Orange, Fla.

WANTED.—One carload (about 300 colonies) of bees in modern ten-frame hives at once. State price, first letter. ERIK FORSBERG, Nordhoff, Cal.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

WANTED.—50 colonies to a carload of populous bees. Make lowest price on the same.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Full colonies of pure Italian bees in eight-frame dovetailed hives with Hoffman frames, at \$6.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Golden Italian queens—untested, 70 cts.; dozen, \$8.00. Send for circular.
D. T. GASTER, Rt. 2, Randleman, N. C.

If you are in the market for bees in two and three frame nuclei we can please you. Write for prices.
E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Untested queens, Howe stock, select; mated to drones of a heavy honey-gathering strain. Ready in June. Untested, \$1.00; 6 for \$5.00. Circular on request.
D. G. LITTLE, Hartley, Ia.

QUEENS.—Red clover and golden prove the best honey-gatherers. Untested, 50 cents; select untested, 75 cts.; tested, \$1.00. Nuclei, \$1.00 per frame.
EVANSVILLE BEE AND HONEY CO., Evansville, Ind.

Italian queens, untested, 75 cents; tested, \$1.25; breeders, \$5.00 each. Nuclei, with two frames, with untested queen, \$2.50.
E. M. COLLYER,
75 Broadway, Ossining, N. Y.

Queens and half-pound packages. A strain of three-banded Italian honey-gatherers now ready for you. Satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—One hundred colonies of bees in ten-frame double-walled Langstroth chaff hives, in fine condition, with surplus fixtures for both comb and extracted honey.
CHARLES H. OSBORNE,
66 West Main St., Le Roy, N. Y.

FOR SALE.—Golden untested queens at 75 c. each, or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00; select tested, \$2.00, or 6 for \$10.00. Safe arrival and perfect satisfaction guaranteed.
R. O. COX,
Box 8, Garland, Ala.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Italian queens of Superior strain, from grafted cells built in strong colonies. No foul brood or other disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY CO.,
College City, Cal.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog. FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

Goldens that are golden. Queens that produce golden-to-tip workers, hardy, and honey-getters; a race of bees that has taken 15 years to produce, and will please all who try it; have had as high as 300 lbs. surplus to hive in one season. Will replace all mated \$1.50 queens. Pure matings guaranteed. Queens, \$1.00 to \$2.00. Send for booklet.
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

FOR SALE.—Italian queens bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei in May, without queen, one-frame, \$1.75; two-frame, \$3.00; three-frame, \$5.50. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular.
ROBERT B. SPICER, Wharton, N. J.

Help Wanted

WANTED.—Assistant apiarist. Must be steady, honest, and willing to go to Colorado or Montana as needed.
THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

WANTED.—Young or middle-aged man for packing and shipping department in bee hive factory, out of town. State experience, and salary expected.
1625 L. & Co., 150, care of this paper.

Real Estate

WANTED.—Ground to locate and keep bees; also house. E. M. COLLYER, 75 B'way, Ossining, N. Y.

FOR SALE.—Bargain—house and lot, best corner principal street; stable, chicken-house; good town; excellent schools; two churches; no saloons; thickly settled country; good location for saddler and cobbler or a short-order restaurant; none within ten miles; also fifty stands of bees; honey-extractor; good honey location; \$500, part time.
J. H. WEEKS, Nederland, Texas.

Miscellaneous

Shetland ponies.

MIDWOOD FARM, Frederick, Md.

Finely tempered steel hive-tools, postpaid, 20 cts. each. HENRY BENKE, Pleasantville Station, N. Y.

FOR SALE.—Curtis motor cycle, in good running order. Good tires, magneto. For further information write to W. V. HENSHAW, Unifontown, Pa.

Rubber stamps to order. Egg-daters, 60 cts. Leg-horns, W. Wyandotte breeder. JEFF. MACOMBER, Gaylord, Mich.

WANTED.—Every beekeeper try a Boyum foundation-laster. See advt on p. 00, this issue. THE BOYUM APIARIES CO., Rushford, Minn., U.S.A.

WANTED.—Automobile, typewriter, incubators and brooders, in exchange for nursery stock, hives, supers, and other supplies. F. H. MCFARLAND, Hyde Park, Vt.

FOR SALE.—Old bee papers. American Bee Journal, years 1884 to 1893; Gleanings, years 1888 to 1894; Gleanings, years 1873 to 1878, bound in Emerson binder. A. J. BUCHANAN, Eldora, Ia.

WANTED.—Copies of GLEANINGS in good condition, for Feb. 1, 1911 and Feb. 1, 1912. Subscribers having a spare copy for either of these dates will please notify us by post card. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Holsman automobile — one of the reliable makes. Owner (a doctor) having bought a higher-powered car will sacrifice at \$135. Speak quick. The car is worth much more. F. B. CAVANAGH, Hebron, Ind.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00.

J. F. MICHAEL, Winchester, Ind.

I. R. duck eggs, fawn and white brownies, 20 for \$1.00. White-egg strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

Golden-laced Wyandottes and Indian Runner ducks. Blue-blooded egg-producers. Eggs, 15, \$1.50. DR. D. OSCAR MEAD, Pinckneyville, Ill.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Orders for eggs that will hatch, at 10 cts. each, for Indian Runner ducks, white and fawn; also for Buff Rock chickens; both standard stock, and from good laying strains. Write; want to tell you more about them, or place your order now. J. RUDY ROEBUCK, Dalton, Ohio.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs. C. O. YOST, Rt. 4, Winchester, Ind.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited. ROBT BIRD, Pinckneyville, Ill.

Poultry

15 eggs, White and Barred P. Rock, White Wyandotte, 75 c. Free cat. H. S. DUBY, St. Anne, Ill.

Eggs and stock for sale from leading strains B. P. Rocks. MRS. W. L. BENNETT, Rt. 1, Crooksville, O.

Sicilian Buttercups. Eggs for hatching. Circular free. D. S. DURALL, Hurdland, Mo.

Barred Rock eggs — Bred-to-lay strain; \$1.00 per 15. Catalog free. J. W. DAIL, Cambridge, Md.

For utility and beauty, Buttercups unlike others. Eggs in season. H. V. MEEKER, Earl, Toledo, O.

FOR SALE.—S. C. R. I. Red and S. C. W. Leghorn eggs — \$5.00 to \$12.00 per 100; chicks, \$10.00 to \$25.00 per 100. C. H. ZURBURG, Rt. 1, Topeka, Ill.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkville, Ill.

Kellerstrass Orpington-Wycoff S. C. W. Leghorns. Birds reasonable. Eggs, \$1.50 to \$3.00 per 15. CLAUD IRONS, Linesville, Pa.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address THE VAN DRUST FARMS, Cedar Grove, Wis.

BUTTERCUPS.—Eggs from three pens of grand birds—15, \$3.00; 30, \$5.50; 100, \$15.00. Satisfaction guaranteed. RIVERVIEW POULTRY FARM, Union City, Mich.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free. GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Baby chicks, 9 breeds. Prices from 9 cents up; 100,000 chicks hatched per year. Catalog free. Over 6000 laying hens. TAYLOR'S POULTRY YARDS, (Sales Dept.) Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. W. O. ROUDABUSH, Hagerstown, Md.

Real bargains. In stock, 2-lb. pullets, chicks, eggs; heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns, Pekin ducks—the kind we all want. No strikers during winter. Catalog free. CRYSTAL SPRING FARMS, Rt. 3, Lititz, Pa.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$3.00 per 13; \$6.00 per 30, from thoroughbred stock; very handsome, very tame, very light feeders; lay large white eggs; the world's champion layers. HENRY WOODWORTH, JR., Cheboygan, Mich.

Prize-winning S. C. R. I. Reds; thoroughbred White Orpington, Barred Rocks, Indian Runner ducks, fawn and white. Eggs and chicks. DAVID M. HAMMOND, Woodside Poultry-yards, Rt. 5, Cortland, N. Y.

Bee-keepers' Directory

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912: beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous Improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

By OUR BUSINESS MANAGER

Our Philadelphia manager, Mr. Wm. A. Selser, expects to continue lectures on beekeeping again this year on our roof at 10 Vine Street, Philadelphia, Pa., during May and June, every Tuesday and Friday, between 11 and 12 o'clock. Visitors desiring to see the actual work with the bees, and the various manipulations of the hives, will be welcome at these demonstrations. Of course, visitors are welcome at our store during all business hours, but for lectures and demonstration work are invited particularly at the hours named.

Special Notices

By A. I. ROOT

"THE CROWN OF DIAMONDS AND THE CROWN OF THORNS."

On my return from Florida I find that our people have printed and sent out 35,000 leaflets with the above heading. Letters come to us telling that towns and counties have probably been made dry instead of wet by the distribution of these leaflets. Remember, 10, 25, or 100 copies will be mailed free of charge if you will promise to distribute them judiciously. The postage on 100 copies is about 10 cents. If you wish to help pay for the printing and paper you may, if you choose, send the postage, as above.

"SUCCESS AND BLISTERS ARE TWIN SISTERS."

The above is clipped from that excellent *Petaluma Poultry Journal*, the only weekly periodical devoted to poultry, so far as I can learn. It is given as follows in a list of "don'ts."

"Don't mind a blister. Success and blisters are twin sisters."

By the way, let me say right here that not only my bodily health but my peace of mind depends on my working in the garden with the hoe, spade, or with the ducks and chickens, *every day of my life*. "By the sweat of thy face shalt thou eat bread."

THE CYPHERS INCUBATOR CATALOG FOR 1912.

This time it is a big book of nearly 250 pages; and, as I have said before, it contains as much of value as many fifty-cent poultry books—yes, more than some costing a dollar. Now, this catalog has a peculiar value. There seems to be a general impression that there are very few large poultry establishments that are a success. The truth is, there are hundreds of them, and they are scattered all over

our land, from Maine to Florida, and all the way to California. This catalog contains beautiful photos of these different poultry establishments, and letters from the proprietors, telling what they have made and how they did it, etc. Why, some of them are using a *hundred* or more of Cyphers' large-sized incubators. The catalog also tells about running incubators by means of gas and electricity. It also gives the prices of every thing in the way of up-to-date poultry appliances. Just send a postal card for it, to the Cyphers Incubator Co., either Buffalo or New York City.

DICKINSON'S SCHOOL OF MEMORY.

Some time ago I wrote for particulars of the above, and received a lot of literature, testimonials, etc.; but as they wanted, I think, \$25.00 for the "course" I dropped it. After a little time came an offer of the "whole outfit" for only fifteen dollars. As I didn't "bite," later only \$10.00; still later, \$5.00; and to-day, for some very plausible reasons, comes an offer for only \$3.00. What do you think of that way of doing business? I have before made mention of this (page 704, Nov. 15), as one of their "victims" submitted to me the whole thing, for which he paid \$10.00. Just now I notice they include lessons in "Personal Magnetism," how to overcome "bashfulness," etc. Thank you my good friends. There is too much of that kind of "schooling" already; and yet respectable periodicals accept advertisements from the "Memory Correspondence School."

Kind Words from Our Customers.

Mr. A. I. Root:—I have been an interested reader of GLEANINGS for over a year, and especially of the department conducted by yourself. I am glad to see that you favor prohibition, and I hope to see you in the ranks of the Prohibition party soon. In fact, the circumstances are such that I think you will be compelled to take that stand, almost in spite of yourself. Conditions in this city show the need of a permanent organized party behind the law to make it effective.

I am glad that you speak against tobacco. I have never used it and never will.

Savannah, Ga., March 20.

C. E. A. HALE.

"THE CROWN OF DIAMONDS AND THE CROWN OF THORNS."

Mr. Root:—A few days ago a friend gave me a copy of the circular which you issued, "The Crown of Diamonds and the Crown of Thorns." It did me good to read it, particularly the remarks of the *Arizona Gazette*, as he calls a spade a spade and hits from the shoulder.

Our village suffers from the rum curse; and as it is the education of public opinion that must make the change instead of law, it occurs to me that some of these will do some good here.

I inclose a check for \$1.00, which, as per the note at the end of the circular, would be your charge for 1000 copies. Send them to me by express, and we will see if they can not do a little good.

I have already arranged with our newsdealer here so that, for a small charge, he will inclose one of them with all the papers he delivers on the evening delivery. This will use 900 copies, and I want a few to give to those who will use them.

I never expect to see the country free from rum. It is a part of the divine plan that man must have a chance to choose between good and evil; to earn his title to his eternal home of happiness or of punishment. Our life is a school, and we are all learning lessons every day. Death is graduation, and that examination will show how well we have learned the lesson and determine our position. One of the lessons is that we are our brother's keeper; and if we can educate his mind to realize the results of intemperance, we accomplish two things: We learn one of our lessons and gain the merit deserved, and we turn his steps toward the light, it may be save him; and, while he may not thank us here, it is quite plain that, in the after-life, when he sees things in a clear vision, he will thank us. Those thanks are worth earning.

Cuyahoga Falls, O., Dec. 1. ED. F. EDGECOMBE.

Our Foundation Factory

This has been running night and day this season to keep up with our orders. We are not a single order behind, and do not intend to be. You may judge, therefore, what prompt attention your orders will have at our hands. Not only this, but for quality of goods ours have no equal. We have scores of letters from satisfied users of our foundation, and not a single complaint. Let us put your name on our record.

Our stock of pails, cans, and cases is more complete than ever before. We have now adopted a six-pound pail of the size suggested by the Texas Beekeepers' Association. It is an inch taller than formerly, and will not cause dissatisfaction among dealers because of short weight. We have also made an improvement in the cases holding the twelve-pound friction-top pails, adding partitions so that they are stronger. You will not be disappointed in the quality of any of these goods.

We have our usual stock of Root's goods. All the principal items listed in the catalog on hand ready for quick shipment. Frames, hives, sections, smokers, etc., and honey-extractors of many sizes and styles. If you haven't investigated the advantages of the power extractors, we suggest that you do so this season. Instead of being an expensive equipment you will find it a money and honey saving investment. Full particulars on request.

We can also fill your orders for queens promptly, and we are sure our stock will please you. Special prices on quantity lots for requeening large yards.

Topperwein & Mayfield,

Corner Nolan and Cherry Sts.

San Antonio, Texas.

Printype — OLIVER Typewriter

The Only Writing Machine in the World
that Successfully TYPEWRITES PRINT

--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an *ordinary* typewriter—*payable in pennies!*

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of typewritten matter *as readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's *printing presses.*

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and *character* into typewritten correspondence. It makes every letter, every numeral, every character, "*as plain as print.*"

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "Printype" sprung resulted from the success of our type experts in equipping a typewriter used in our offices to write "The Oliver Typewriter" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "ebony" trade-mark type, disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "Printype."

The Public's Verdict

That the public is overwhelmingly in favor of Printype is impressively shown by this fact:

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* Printype in preference to the old-style type.

Within a year, at the present rate, *90 per cent of our total sales will be "Printypes."*

Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is again to the fore with another revolutionary improvement — *Printype, the type that prints print!*

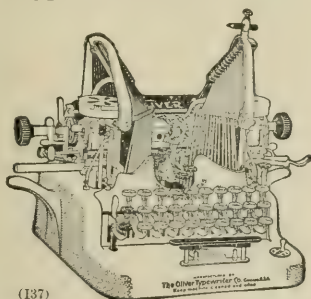
To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "17-Cents-a-Day" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase.

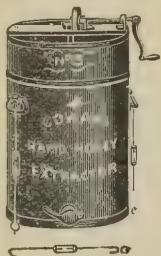
The masses want The Oliver Typewriter because it stands the test of the largest corporations.

Meet "Printype"—You'll Like Its Looks

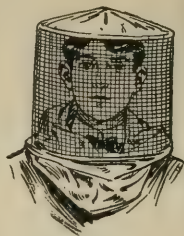
Ask for Specimen Letter and "17-Cents-a-Day" Plan. Make the acquaintance of Printype, the reigning favorite of typewriterdom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "17-Cents-a-Day" Plan on request. Address Sales Department.

The OLIVER Typewriter Company
116 Prospect St., Cleveland, O.





ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas.
C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

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St. Paul, 1024 Mississippi St.

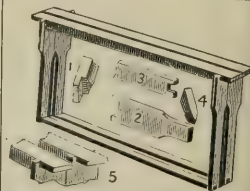
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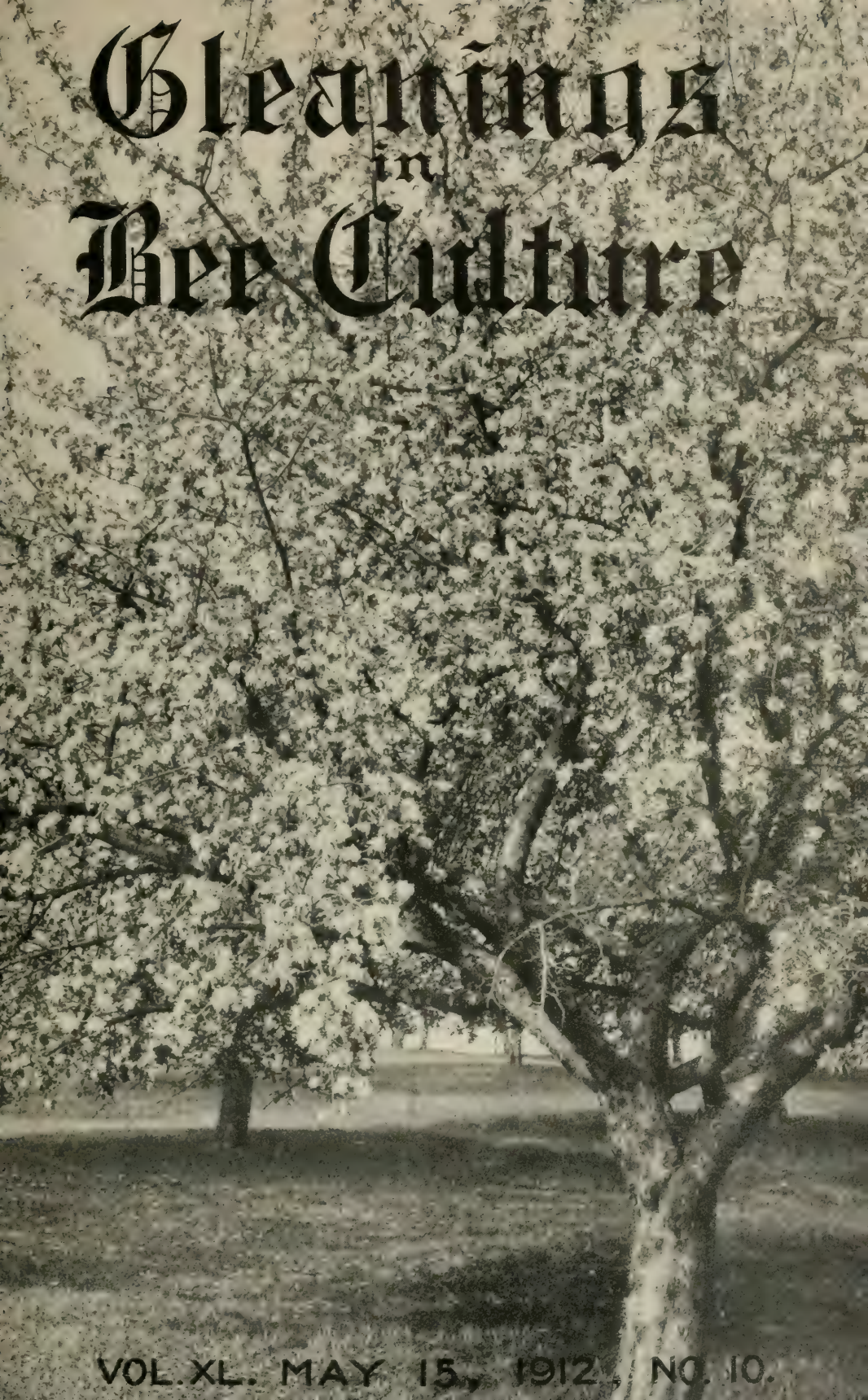
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Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO





Gleanings in Bee Culture

VOL. XL. MAY 15, 1912., NO. 10.



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

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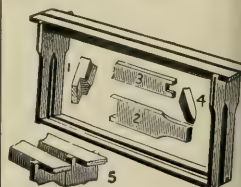
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Send your rush orders for sections, foundation and other articles in our catalog, to any of our distributors, or to the factory at Falconer, N. Y. They will be filled QUICK.

Our Red Catalog is the most logically arranged and the easiest from which to order of any catalog ever published. If you do not have a copy DROP US A POSTAL TO-DAY. The NEXT MAIL WILL BRING IT so you can make up order for those goods which YOU WILL NEED IN A HURRY, and which WE WILL SHIP IMMEDIATELY upon receipt of order.

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New York—Deroy Taylor, Lyons; Hudson Shaver & Sons, Perch River; Charles Stewart, Johnstown; W. T. Falconer Mfg. Co., Falconer; C. B. Howard, Romulus.
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Foreign Beekeepers

In nearly every foreign country we have an established distributor, and can supply the wants of foreign bee-keepers everywhere. In such localities as we are not represented, are always glad to take up the matter with those desiring to handle goods.

There are other dealers in many localities. Send us a list of 1912 requirements for quotation from our nearest dealer, or delivered if you desire.

OUR RED CATALOGUE, the most logically arranged catalog ever published, sent postpaid. Simplified Beekeeping, a concise beginners' treatise, free.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from
Falconer, N. Y.

Honey Markets

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, May 2. **BLAKE-LEE CO.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb. Indianapolis, May 2.

WALTER S. POWDER.

ZANESVILLE.—The market remains quiet. The supply of honey still seems to balance the demand. Former prices are still in effect. In small lots, best grades of white comb bring 20 cts. There is practically nothing doing in extracted. Producers are offered for beeswax 29 cts. in cash or 31 in exchange for bee-supplies.

Zanesville, O., May 2.

E. W. PEIRCE.

CINCINNATI.—At this season of the year we aim to close out all lots of comb honey so that the market will be bare for a while in order to welcome the new crop "with a vengeance" when it comes in. We are selling the fancy comb honey we have at \$3.65 to \$3.75 to wholesaler, and \$3.80 to \$4.00 to retailer. Our fanciest extracted honey in crates of two 60-lb. cans we are selling at from 8 to 10 cents, according to the quality and quantity purchased; and amber honey in barrels at 6 to 7½. For choice bright-yellow beeswax we are paying 30 cts. in cash (delivered here), or 32 in trade.

Cincinnati, May 3. **THE FRED W. MUTH CO.**

ST. LOUIS.—There is no change in our honey market. Comb honey is almost entirely sold out and quotations are nominal. Extracted honey is in small supply, and barely any demand. We quote fancy white comb at 16 to 17 cts.; No. 1 white, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted California light amber brings 8½ to 9; Southern light amber, 8 to 8½ in five-gallon cans; Southern in barrels and half-barrels 7 to 7½ for light amber; dark, less. Beeswax, prime, brings 30 cts.; inferior and impure, less.

R. HARTMANN PRODUCE COMPANY.

St. Louis, May 7.

NEW YORK.—Our market is practically bare of comb honey; and what few odd lots arrive now and then find ready sale at from 15 to 17 for white, and 12 to 14 for light amber and No. 2 amber. As to extracted honey, the market is inactive, and the demand not up to that of former years, with more than sufficient supplies to meet demands. Prices are gradually declining all along the line, but we expect to be able to dispose of our holdings before the new crop arrives. We quote California sage at from 9 to 9½; light-amber alfalfa, 6 to 6½; buck-wheat, 6. In large quantities even these prices would have to be shaded in order to effect sales. The new crop of West Indian is now beginning to arrive quite freely, and is selling at from 68 to 75 cts. per gallon, according to quality. Beeswax is firm and steady at 30 to 31.

New York, May 3. **HILDRETH & SEGELKEN.**

BEES REQUIRE UP-TO-DATE WORKSHOPS

MUTH'S SPECIAL and IDEAL METAL-COVERED Dovetailed Hives are bought by the practical bee-keeper. Honey-board and all regular fixtures with each hive; finest lumber and workmanship used in the manufacture of our Bee Hives. Fully illustrated in our big catalog. Send for it to-day.

THE FRED W. MUTH CO.

"THE BUSY BEE MEN"

51 WALNUT STREET

CINCINNATI, OHIO

We Pay the Highest Cash Market Price for Honey and Beeswax Always

The season has opened up more favorably, after all, than many beekeepers anticipated, and many find themselves unprepared for the swarming period and honey-flow which is just before them. Extra hives just now may mean almost a double output of honey, and we can get these hives to you at once. We have a large and complete stock of all kinds and combinations, and can fill your order the day it is received.

If you are producing comb honey the Danzenbaker hive will give you most excellent satisfaction. Reports from large users of this hive show that with it a very large percentage of fancy comb honey may be produced; and with a little extra protection it is an excellent wintering hive.

Another comb-honey hive that is very popular this season is the Buckeye double-walled hive. This is the new movable-bottom pattern, and the double-wall feature offers protection, not only in the winter, but at all seasons. This is particularly valuable in the early part of the season when sudden changes of temperature are apt to have disastrous results.

For the production of extracted honey there is no better hive than the regular ten-frame dovetailed pattern. This has been a standard for years, and will admit of a number of changes and combinations to suit local conditions and the season.

We have also, of course, our usual stock of all other supplies, and can handle your order for any item listed in our catalog with our usual promptness and dispatch. We are better equipped than any other dealer in this section to give special attention to hurry orders, and solicit a trial of our goods and our service.

C. H. W. Weber & Co.

2146 Central Ave.

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dept.

H. H. ROOT

Ass't Editor

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Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer.

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The Purity of the SWEET-CLOVER SEED

Sold by The A. I. Root Co. Is Attested to by the
U. S. Government

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Brooksville, Ky., March 13, 1911.

The A. I. Root Co., Medina, Ohio.

Gentlemen.—Some time ago I sent to you for a sample of your white and yellow sweet-clover seed. After receiving the samples I sent them to Washington, D. C. The yellow hulled tested 99.71 per cent of pure seed; the unhulled white tested 99.11 per cent of pure seed. I think that is fine. I inclose you the sample that you sent me, and want you to send me 80 lbs. of the same lot that this sample is out of, or some equally good. Send the seed by freight.

Yours truly, H. A. JETT.

We have a booklet, published for free distribution, which tells THE TRUTH ABOUT SWEET CLOVER. Ask for your copy.

We can now supply fresh new seed of 1911 crop in all but the annual yellow at following

PRICES

In lots of—	11 lb.	10 lb	25 lb.	100 lb.
Hulled Yellow Annual (<i>Melilotus indica</i>), lb.	15c	12c	11c	10c
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Hulled White, Domestic seed	23c	20c	19c	18c
Unhulled White (<i>Meli-</i> <i>lotus alba</i>) per lb.	16c	14c	13c	12c

The prices are all subject to market changes.

As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference.

The A. I. Root Company, Medina, O.



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- The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
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- Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

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Street Address or R. F. D.

Town

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DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873

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Issued Semi-monthly

A. L. BOYDEN, Advertising Manager

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The following letter will give you a tip as to where you can secure best goods, best treatment, and most prompt delivery.

Mr. E. W. Peirce,
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The bee-supplies were received March 4th. The February cash discount was received also. Many thanks for promptness and kind treatment.

Yours truly,
FRED BAILEY.

Thornton, W. Va.

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A postal card addressed as below will bring you a large illustrated catalog.

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Selected tested queen	\$ 2.50
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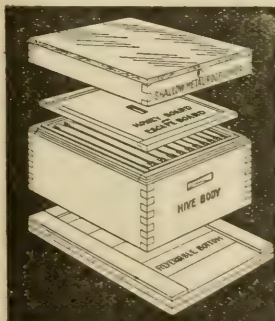
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"GIVE US DADANT'S FOUNDATION

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"The Manual of the Apiary"

By PROF. A. J. COOK

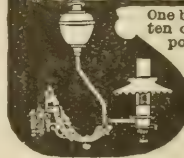
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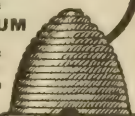
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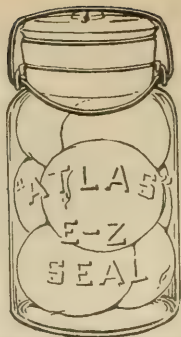
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Name

Address

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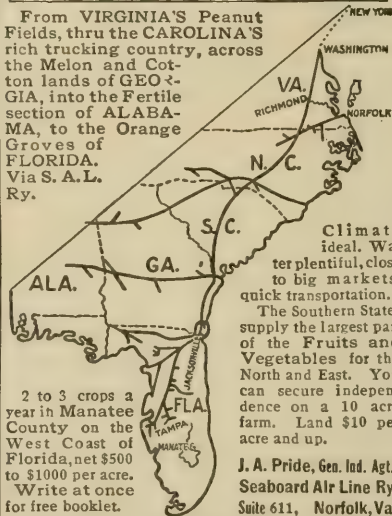
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THE CURTISS POULTRY BOOK: The story of the Curtiss brothers and their great Niagara Farm, built up from nothing to an annual business approximating \$100,000 per year. Ducks, eggs, broilers, and cut clover are their staples. A remarkable story. 56 pages, illustrated. 3rd Edition, 30th thousand.

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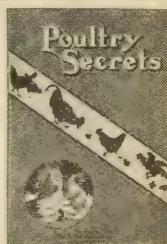


FALL-BEARING STRAWBERRY SECRETS: The first complete hand-book covering the culture of this wonderful new fruit. Any one who can raise June strawberries can raise the Fall-bearers, but culture is different. Those who started first are reaping the high market profits. 64 pages, illustrated.

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The FARM JOURNAL is the standard farm and home paper—foremost in the world. It has more than 750,000 subscribers. It is up-to-date, clean, boiled-down, honest. It knows what to say, and can stop when it has said it. It is for the poultryman, gardener, horse owner, dairyman, grain grower, fruitman, the farmer, the villager, the suburbanite, the man who lives in the country, and those who would like to, the women folks, the boys and girls. In short, it is for YOU. Cheerful, entertaining, intensely practical, absolutely clean. When the time is up it will stop.

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For the enclosed \$1.00 send me your paper one year. FARM JOURNAL till Dec. 1915, and the booklet

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs.
C. J. BALDRIDGE,
Homestead Farm. Kendala, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin packages, any quantity.
DADANT & SONS, Hamilton, Ill.

FOR SALE.—Clover, clover-basswood blend, milkweed, and raspberry extracted honey in packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Beeswax. Will pay highest cash price on arrival. Drop us a postal.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog.
E. W. PEIRCE, Zanesville, O.

WANTED.—Car load of bees in any kind of hives, for May or early June delivery.
H. & W. J. MANLEY, Sandusky, Mich.

WANTED.—Bees in hives, cages, by the pound, or five-frame nucleus. Will accept carload or less. Southern beemen, respond.
F. B. CAVANAGH, Hebron, Ind.

Help Wanted

WANTED.—Man to help take care of bees. State age, experience, and wages expected.
CHAS. ADAMS, Rt. 4, Greeley, Colo.

WANTED.—Young man with some experience to assist in our large apiaries. Give age, height, weight, previous experience in full, wages, references, all in first letter. No liquor nor tobacco.
E. F. ATWATER, Meridian, Idaho.

For Sale

FOR SALE.—Get more money for your comb honey. Send 25 cts. for sample selling plan, to W. S. SHAFER, Dept. G, South Omaha, Neb.

FOR SALE.—Empty second-hand 60-lb. cans, 25 cts. per case of two cans; 100 for \$22.50.
E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce overstock. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Alsike clover, \$14.00 per bushel; ten-frame Root dovetailed hive, good condition, nailed and painted. W. Wood, Rt. 2, Rock Elm, Wis.

FOR SALE.—60-lb. cans, like new, 25 cts. per case, two in a case.
GEO. RAUCH,
5343 Boulevard, Guttenberg, N. J.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—4000 fence separators and section-holders for 4½ x 4½ plain 1½ sections at half price, delivered at your station—nearly new.
D. C. ROBERTS, Ordway, Colo.

FOR SALE.—100 eight-frame comb-honey supers for 4 x 5 sections, nailed and painted, good as new; 30 cts. each.
P. TEN BROECK,
Rt. 4, Saugerties, N. Y.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand.
L. H. RANDALL, Medina, O.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

To close out stock I will sell one-story hives, eight-frame, at \$1.15; in flat, \$1.50; N. and P. supers, 45 in flat; 60 N. and P. sections at \$2.00 per case; \$3.50 per 1000; wood-zinc honey-boards, 15 cts.; smoke-engine, \$1.25; Danz, frames, \$2.50, section-holders \$2.00 per 100; also 20 second-hand hives at \$1.00 each, in good order. No disease.
GEO. E. KRAMER, Valencia, Pa.

Root, Hilton, and other chaff hives; Danz, and eight and ten frame dovetailed hives; hundreds of supers, all painted; Alley queen-trap; Alexander feeders and other beekeepers' supplies, at less than half price. This chance may never occur again. Particulars on request. Wanted, 300 or less stocks of bees—any style of hive or box.
A. W. SMITH, Birmingham, Mich.

SOUTHERN BEE-KEEPERS!—I have a large and complete stock of new bee-supplies at Cordele, Ga., and O'Brien, Fla. (near Live Oak, Fla., the best and most direct shipping-point for all points in the State, Southwestern Georgia, and Southeastern Alabama). Send all orders to J. J. WILDER, Cordele, Ga., and state from which point you wish shipment made.

Bees and Queens

WANTED.—Carload of bees for cash.

JOHN C. BULL, Rt. 8, Valparaiso, Ind.

Well-bred bees and queens. Hives and supplies.
LINCOLN MCCARGAR, Los Gatos, Cal.

Golden Italian queens, ready to mail, \$1.00.
J. B. CASE, Port Orange, Fla.

FOR SALE.—Full colonies of pure Italian bees in eight-frame dovetailed hives with Hoffman frames, at \$6.00 each. F. A. GRAY, Redwood Falls, Minn.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

FOR SALE.—100 colonies of bees, free from foul brood; also 50 empty hives, supers, etc.
S. E. TENNANT, Schocharie, N. Y.

FOR SALE.—Italian queens, \$1.00 each. Write for prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Golden untested queens at 80 cents each or \$8.00 per dozen. Safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—Golden Italian queens—untested, 70 cts.; dozen, \$8.00. Send for circular.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Full colonies of bees in Portico L. hives, at \$4.00, and three-frame nuclei with hybrid queen, at \$3.00, f. o. b. Barre.
H. WILLIAM SCOTT, Barre, Vt.

FOR SALE.—100 colonies of bees, well Italianized; cash only. What is your best offer? I will not sell cheap. My sales are one thousand per season.
MRS. S. WILBUR FREY, Sand Lake, Mich.

QUEENS.—Red clover and golden prove the best honey-gatherers. Untested, 50 cents; select untested, 75 cts.; tested, \$1.00. Nuclei, \$1.00 per frame.
EVANSVILLE BEE AND HONEY CO., Evansville, Ind.

FOR SALE.—Bees in almost new eight-frame hives, about 150 supers and 75 empty hives; extractor; selling out.
GEO. RAUCH,
5343 Hudson Boulevard, Guttenberg, N. J.

QUEENS.—Three-banded Italians only. Tested, \$1.00 each; untested, \$1.00; \$9.00 per dozen. Send for price list. No foul brood.
J. W. K. SHAW & Co., Loreauville, La.

Queens and half-pound packages. A strain of three-banded Italian honey-gatherers now ready for you. Satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Untested queens, Howe stock, select; mated to drones of a heavy honey-gathering strain. Ready in June. Untested, \$1.00; 6 for \$5.00. Circular on request.
D. G. LITTLE, Hartley, Ia.

Italian queens, unt., 75 cts.: tested, \$1.25. Cyprians, Carniolans, Banats, Caucasians, \$1.00 to \$1.50; two-fr. nuclei, \$2.00; supplies; honey-packages.
W. C. MORRIS, 74 Cortlandt St., New York City.

FOR SALE.—Sixty-four colonies bees in dovetailed hives with supers; abundant stores, and populous; \$150 for the lot. If bought I will pay railroad fare one way within 250 miles.

GEO. G. SCOTT, Wadena, Ia.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Italian queens of Superior strain, from grafted cells built in strong colonies. No foul brood or other disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY CO.,
College City, Cal.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog.
FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

FOR SALE.—Early "Italian" (Frofalcon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens 50 cts. additional; select tested, \$1.00 extra.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

FOR SALE.—One hundred colonies of bees in ten-frame double-walled Langstroth chaff hives, in fine condition, with surplus fixtures for both comb and extracted honey.
CHARLES H. OSBORNE,
66 West Main St., Le Roy, N. Y.

FOR SALE.—Golden untested queens at 75 c. each, or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00; select tested, \$2.00, or 6 for \$10.00. Safe arrival and perfect satisfaction guaranteed.
R. O. COX,
Box 8, Garland, Ala.

FOR SALE.—100 colonies of bees in 10-frame painted hives, Hoffman frames and Colorado covers; 100 extracting-bodies with good straight combs; \$5.00 a colony if taken at once. These bees are in A No. 1 shape.
A. A. LYONS,
Rt. 5, Box 88, Fort Collins, Col.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

Goldens that are golden. Queens that produce golden-to-tip workers, hardy, and honey-getters; a race of bees that has taken 15 years to produce, and will please all who try it; have had as high as 300 lbs. surplus to hive in one season. Will replace all mated \$1.50 queens. Pure matings guaranteed. Queens, \$1.00 to \$2.00. Send for booklet.

I am booked full on golden queen orders until June 15, 1912
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

FOR SALE.—Italian queens bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei in May, without queen, one-frame, \$1.75; two-frame, \$3.00; three-frame, \$3.50. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular.

ROBERT B. SPICER, Wharton, N. J.

WANTED.—Healthy bees by the pound—good laying young queen with each pound, of any color or race except golden. May, June, or July delivery. Quote prices, properly packed, delivered at your express office. Any sized lots, as the hard winter has furnished many empties to fill. Quote without queens also.

THOS. J. STANLEY,
Manzanola, Otero Co., Colo.

Our golden Italian queens produce the brightest and gentlest golden bees that we ever had; great honey-gatherers, and not bad robbers. Our three-band are the best of their kind. Price of either, untested, \$1.00; tested, \$2.00; breeders, \$3.00. We will make a very low price later in the season.

C. W. PHELPS & SON,
Dealers in beekeepers' supplies, Binghamton, N. Y.

Position Wanted

WANTED.—Position with beekeeper in the States; prefer the East. B. LISS, Lewiston, Oriente, Cuba.

Real Estate

FOR SALE.—120 acres of nearly all river-bottom land; one million feet timber; 100 colonies healthy bees in good location, up-to-date hives, and including fixtures. Price \$5500—\$3500 cash; balance on time. Address W. F. AULT, Potlatch, Wash.

FOR SALE.—A forty-acre mountain home; good house, well, and other improvements; requires no irrigation; grows any kind of crops; fine location for bees. Three miles from postoffice and railroad. C. G. RENNINGER, Box 11, Arden, Wash.

FOR SALE.—Fine home place in Medina—ten-room house with two bathrooms, electric lights, gas and furnace; three cisterns; fine barn and very large lot, including good garden spot, place for chickens, and plenty of fruit. One block to square and half a block from interurban line. Eight limited cars daily to Cleveland—running time one hour and fifteen minutes to the square. Cash only. Address C. M. C., GLEANINGS, Medina, O.

Miscellaneous

FOR SALE.—One new Oliver typewriter; has never been used; latest printtype style of type; in perfect condition. S. WHANN, Polk, Pa.

WANTED.—Copies of GLEANINGS in good condition, for Feb. 1, 1911 and Feb. 1, 1912. Subscribers having a spare copy for either of these dates will please notify us by post card. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Holsman automobile—one of the reliable makes. Owner (a doctor) having bought a higher-powered car will sacrifice at \$135. Speak quick. The car is worth much more.

F. B. CAVANAGH, Hebron, Ind.

Indian Runner Ducks

Indian Runner duck eggs, 15 for \$1.00.

J. F. MICHAEL, Winchester, Ind.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tompkins strain). S. O. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited.

ROBT BIRD, Pinckneyville, Ill.

Poultry

Eggs and stock for sale from leading strains B. P. Rocks. MRS. W. L. BENNETT, Rt. 1, Crooksville, O.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkville, Ill.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$2.75 per 15; \$5.00 per 30; from thoroughbred stock. HENRY WOODWORTH, JR., Box 505, Cheboygan, Mich.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address THE VAN DRUST FARMS, Cedar Grove, Wis.

BUTTERCUPS.—Eggs from three pens of grand birds—15, \$3.00; 30, \$5.50; 100, \$15.00. Satisfaction guaranteed. RIVERVIEW POULTRY FARM, Union City, Mich.

White Rocks, S. C. White Orpington, Black Spanish, and Indian Runner duck eggs, at farmers' prices. Circular free. GOLDEN RULE POULTRY FARM, Box B, Oakwood, O.

Prize-winning S. C. R. I. Reds; thoroughbred White Orpington, Barred Rocks, Indian Runner ducks, fawn and white. Eggs and chicks.

DAVID M. HAMMOND,

Woodside Poultry-yards, Rt. 5, Cortland, N. Y.

Strictly fresh eggs, direct from our own poultry-yards, in both white and brown color. Also laying pullets. Illustrated catalog free. Write to TAYLOR'S POULTRY YARDS, (Sales Department), Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. W. O. ROUDABUSH, Hagerstown, Md.

Real bargains. In stock, 2-lb. pullets, chicks, eggs; heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns, Pekin ducks—the kind we all want. No strikers during winter. Catalog free. CRYSTAL SPRING FARMS, Rt. 3, Lititz, Pa.

BUTTERCUPS.—Eggs and stock for sale. Breaking up breeding-pens of present season; offer 12 fine pullets, chosen from flock raised last June, at \$3.00 each; 3 hens, \$1.50 each; cockerel, 11 months, \$4.00; cock mated with hens, \$2.00. Will make attractive price on one or two pens from the above. Eggs from my best birds, \$3.00 per 15. Fertility and satisfaction guaranteed. Write me your Buttercup requirements. Reference, The A. I. Root Co.

T. P. HALLOCK,
(Director Am. Buttercup Club.) Medina, O.

Bee-keepers' Directory

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

By OUR BUSINESS MANAGER

Our Philadelphia manager, Mr. Wm. A. Selser, expects to continue lectures on beekeeping again this year on our roof at 10 Vine Street, Philadelphia, Pa., during May and June, every Tuesday and Friday, between 11 and 12 o'clock. Visitors desiring to see the actual work with the bees, and the various manipulations of the hives, will be welcome at these demonstrations. Of course, visitors are welcome at our store during all business hours, but for lectures and demonstration work are invited particularly at the hours named.

SECOND-HAND CANS.

We have a large stock of good second-hand 60-lb. honey cans with screws, two in a case. We empty a good many hundreds of these cans during a year, and we save only those which are in good condition. While we never recommend the use of second-hand cans for choice white honey these we have in stock are so well selected that we would almost risk good honey in them, especially if they were well scalded out just before using. We leave a coating of honey in the can because it preserves it from rusting; but the cans should be scalded out just before filling again. Price \$3.00 for 10 boxes; 25 cts. a box in lots of 25 or over. Can supply a carload.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2½x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price \$14.00 each.

No. 0156, 2½x6 extra thin-super mill, fair. Price \$10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price \$12.00.

No. 0160, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0164, 2½ x 6 hexagonal thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0166, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0168, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0169, 2½ x 6 hexagonal extra-thin-super mill in extra good condition. Price \$15.00.

No. 0147, 2½ x 6 thin-super mill in extra good condition. Price \$15.00.

No. 0175, 2½ x 10 light-brood mill in good condition. Price \$16.00.

No. 0176, 2½ x 6 extra thin-super mill in fair condition. Price \$12.00.

Convention Notices.

BEEKEEPERS' CONVENTION AT MASSACHUSETTS AGRICULTURAL COLLEGE, MAY 29, JUNE 12, 1912.

ANNUAL CONVENTION AND FIELD DAYS,
JUNE 12 AND 13.

The annual short course in beekeeping at the Massachusetts Agricultural College is offered from May 29 to June 13, 1912, to be concluded by a convention and field days. The course and convention is under the personal direction of Dr. B. N. Gates, in charge of the apicultural work of the college and State.

The course includes lecture, laboratory, demonstrational, apiary, and field work, as well as excursions to large apiaries and queen-rearing plants. The concluding convention should bring together many representative apiarists of the East, besides the noted authorities and commercial men.

Among the noted men who have been secured to lecture are:

Dr. James P. Porter, Dean of Clark College, Worcester, Mass.; Dr. W. P. Brooks, Director of the Massachusetts Experiment Station; Mr. A. A. Byard, West Chesterfield, N. H.; Mr. A. W. Yates, Hartford, Ct.; Mr. R. H. Holmes, Shoreham, Vt.; Mr. F. Danzenbaker, Norfolk, Va.; and many other men of prominence will be at this convention.

Because of the fact that such an eminent corps of lecturers and demonstrators have been secured, an exceptional opportunity is offered to men who have apiaries, men interested in the best methods of handling bees; rearing of queens; construction and use of different kinds of hives; comb and extracted honey; increasing of colonies; control of swarming; the hiving of bees. Especial emphasis will be given to the diseases of bees and their treatment, which are now known to occur in practically all parts of the State, thus giving an opportunity to see practical applications of modern scientific principles.

The conference will not only take up the bee industry from the commercial point of view—that is, the production of honey—but their value to the orchardist, the small-fruit grower, to the squash, cucumber, and melon grower, and to the cranberry-raiser.

It is estimated by Dr. B. N. Gates that at least \$30,000 worth of honey could be cropped in Berkshire County alone, and at the same time there would remain from \$10,000 to \$15,000 worth of bees for another harvest.

Are the beekeepers of Massachusetts going to sit by and see interests outside of the State seize this business opportunity? But already it is said that out-of-State beekeepers are proposing to put bees in the Berkshire hills as a business proposition. It should be remembered, also, that there are other good localities for bees in Massachusetts. Opportunities are numerous for the practical beekeepers who will employ modern methods.

For details and announcements, address William D. Hurd, Director of Extension Service, Massachusetts Agricultural College, Amherst, Mass.

Reo the Fifth

By R. E. Olds, Designer

My Ideal Car

Reo the Fifth—my latest creation—shows what I regard as ideal in a car.

It is not too large nor too small, too light nor too heavy. It is long, roomy, speedy and powerful.

It gives one a real car, without being wasteful of gasoline or oil.

Experienced motorists, more and more, are adopting this type of car. So this factory now is building no other model.

The Little Price

The price of this car is no indication of what I've embodied in it. This price, in the long run, I regard as impossible. It is simply a passing sensation.

We have a model factory, splendidly equipped. Also enormous output. We have

worked for years to bring cost of production down to the lowest limit.

This year we save nearly \$200 per car by building only one chassis in this great plant. We ought to, and will, undersell other cars of this size.

But this initial price is too low. A slight advance in materials—a little slip in production—will compel a higher price. And those who delay must expect it.

It is Superb

Here is a car where every detail shows the final touch.

The lines of the car are impressive. The car is long and low, big-wheeled and over-tired. Never was a car more comfortable.

The body finish consists of 17 coats. The upholstering is deep, made of genu-

ine leather, filled with hair.

The lamps are enameled. Even the engine is nickel trimmed.

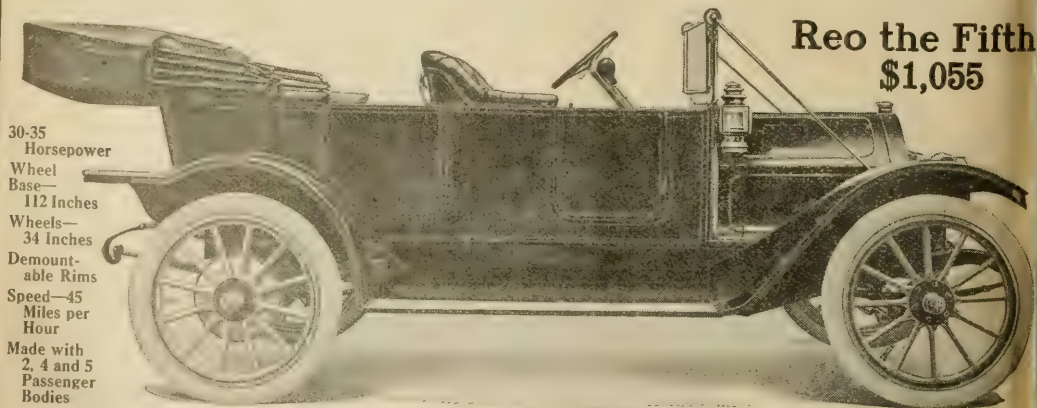
You expect these things in the costliest cars. But you never saw greater perfection in detail than in Reo the Fifth at \$1,055.

In most moderate-priced cars close inspection shows stinting. It reveals many petty economies.

You find wheels too small, tires too small, springs too light. Countless details show the signs of skimping.

Here you find the opposite extreme. Were the car to sell at twice the price not a detail could be bettered. Nor could I add to this car, inside or outside, a single iota of value.

This car is built to represent the very best I know.



Reo the Fifth
\$1,055

30-35
Horsepower
Wheel
Base—
112 Inches
Wheels—
34 Inches
Demount-
able Rims
Speed—45
Miles per
Hour
Made with
2, 4 and 5
Passenger
Bodies

Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas-tank, and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$20 EXTRA.

It Took 25 Years to Build It

I have spent 25 years in active experience to learn how to build a car like this.

This is my 24th model. It embodies all I have learned from building tens of thousands of cars.

No man can possibly build a car like this without knowing what the years have taught me.

Care and Caution

The best I have learned is the need for care and caution — for careful inspection, for repeated tests, and for big margins of safety.

All the steel I use is analyzed, so I know the exact alloy. I take nobody's word in this matter.

The axles, driving shaft, crank shaft, etc., are all much larger than necessary—to guard against any contingency.

I test my gears in a crushing machine with 50 tons' capacity.

I used to make tests, as others do, with a hammer. No, I know to exactness what each gear will stand.

The differential was designed for a 45 h. p. engine.

I put the magneto to a radical test, to know it can never fall down. My carburetor is doubly heated—with hot air and hot water—to deal with low grade gasoline. Thus I eliminate half the common troubles.

Instead of ball bearings I use roller bearings — Timken and Hyatt High Duty. There are only three ball bearings in this whole car.

Tests and inspections are carried to the extreme, so that errors can't slip by.

Such methods seem extreme to men of lesser experience. But a man who has built cars for 25 years learns that he can't be too careful.

The Best I Can Do

The car represents the best I can do—down to the smallest detail. Men will never build cars much better.

The materials are the best that men know. The features are the best yet invented. More of care, skill or caution cannot be conceived.

I have built this car for the thousands of men who have learned to have faith in me. And it justifies that faith.

Ask for Catalog

Our catalog shows the various styles of body, and pictures the important details. The Roadster type sells for \$1,000.

I never knew a car which met such a welcome as Reo the Fifth has met. It is shown by dealers in 1000 towns. When we send our our books we'll tell you where to see it. Address

R. M. Owen & Co.

General Sales Agents for

Reo Motor Car Co., Lansing, Mich.

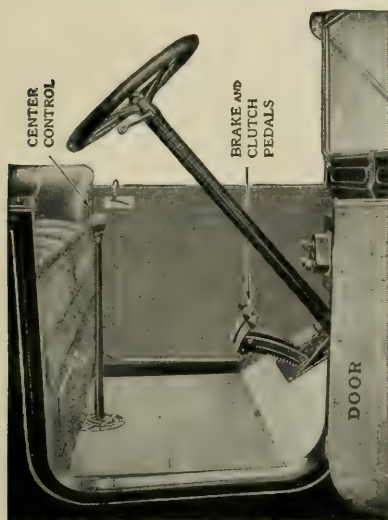
Canadian Factory, St. Catharines, Ont.

New Center Control No Levers--No Reaching

This new center control is exclusive to Reo the Fifth. All the gear shifting is done by moving this handle less than three inches in each of four directions.

There are no side levers, so the entrance in front is clear.

Both brakes are operated by foot pedals. One pedal also operates the clutch. The driver sits, as he should sit, on the left hand side, close to the cars he passes. Heretofore, this was possible in electric cars only. That's one of the unique features.



Printype — OLIVER Typewriter

The Only Writing Machine in the World
that Successfully TYPEWRITES PRINT

--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an *ordinary* typewriter—*payable in pennies!*

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of typewritten matter *as readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's *printing presses*.

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and character into typewritten correspondence. It makes every letter, every numeral, every character, *"as plain as print."*

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "Printype" sprang resulted from the success of our type experts in equipping a typewriter used in our offices to write "The Oliver Typewriter" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "ebony" trade-mark type, disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "Printype."

The Public's Verdict

That the public is overwhelmingly in favor of Printype is impressively shown by this fact;

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* Printype in preference to the old-style type.

Within a year, at the present rate, *90 per cent of our total sales will be "Printypes."*

Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is again to the fore with another revolutionary improvement — *Printype, the type that prints print!*

To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "17-Cents-a-Day" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase.

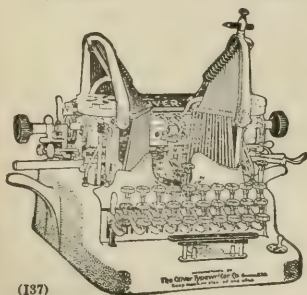
The masses want The Oliver Typewriter because it stands the test of the largest corporations.

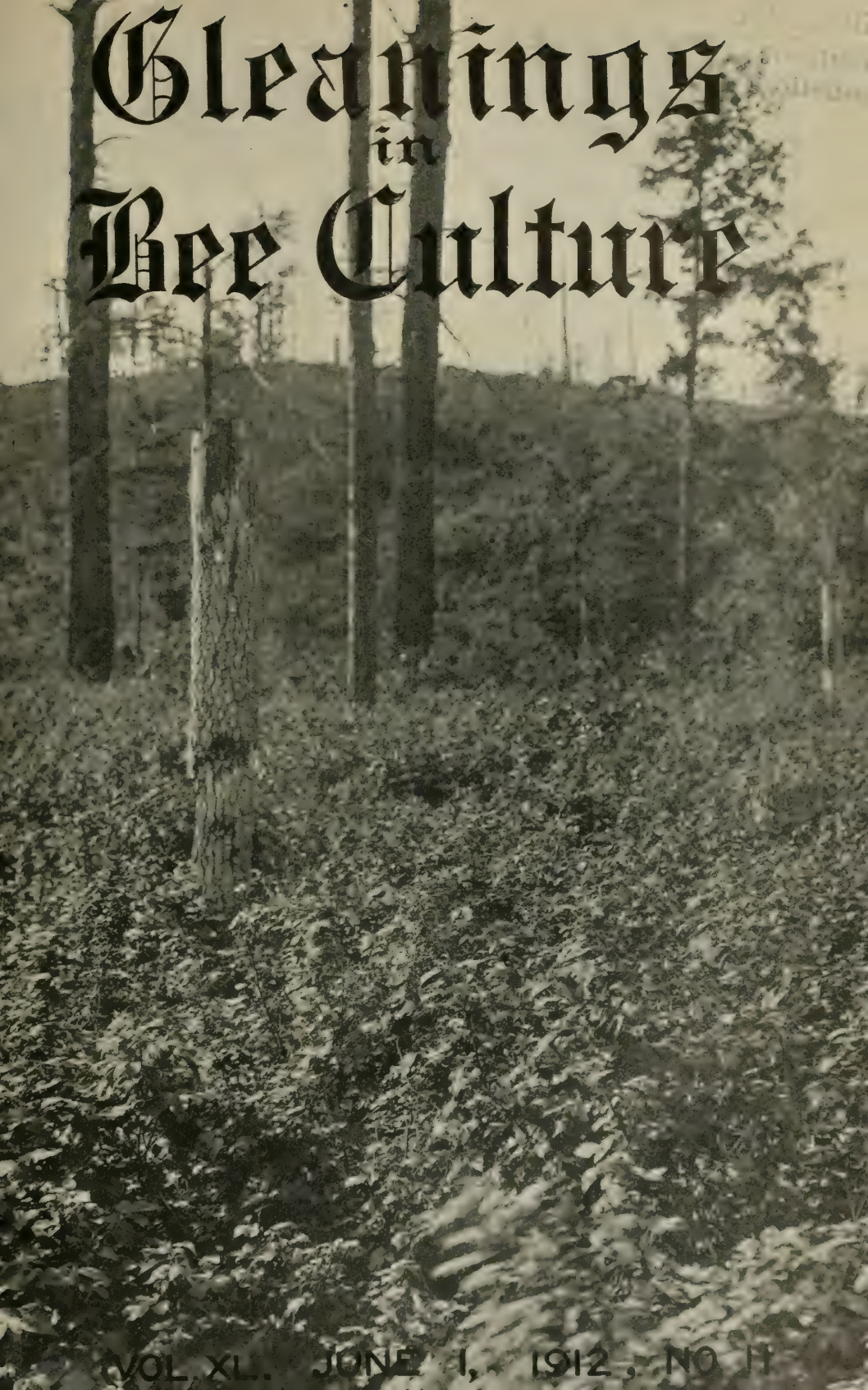
Meet "Printype"—You'll Like Its Looks

Ask for Specimen Letter and "17-Cents-a-Day" Plan. Make the acquaintance of Printype, the reigning favorite of typewriter-dom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "17-Cents-a-Day" Plan on request. Address Sales Department,

The OLIVER Typewriter Company

116 Prospect St., Cleveland, O.





Gleanings in Bee Culture

VOL. XL. JUNE 1, 1912, NO. 11



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever You Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

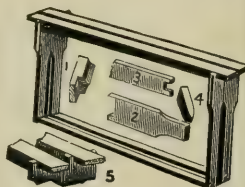
Chicago, 213-231 Institute Place
Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.

Washington, 1100 Maryland Ave., S.W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



RUSH ORDERS

For "Falcon" Beekeepers' Supplies

QUICK PRICE LIST for Those who do not have a Red Catalog

Beeway Sections	No. 1 Quality	No. 2 Quality
250	\$ 1.60	\$ 1.40
500	2.75	2.50
1000	5.50	5.00
5000	23.75	21.25

Plain Sections, 25c per M less.

	1 lb.	5 lbs.	50 lbs.
Light Section Foundation, per pound,	65c	64c	59c
Light Brood Foundation, per pound,	58c	57c	52c

Hoffman Brood-frames, 10, 35c; 100, \$3.00.

No. 14 1-story Dovetailed hive,	1	5	10	1	5	10
cover, body, bottom, and frames,	\$1.50	\$7.00	\$13.50	\$1.50	\$7.50	\$14.50

Dovetailed Supers complete without sections and starters—

No. 2, $4\frac{1}{4} \times 1\frac{3}{8}$ sections	}	8-frame		10-frame	
No. 2B, $4\frac{1}{4} \times 1\frac{1}{2}$ sections		5	10	5	10
No. 2C, $3\frac{3}{4} \times 5$ sections		\$2.50	\$4.80	\$2.75	\$5.30
No. 2E, 4×5 sections					

Ideal Bee-veil, 65c; by mail, 75c.

Standard Smoker, 85c; by mail, \$1.10.

Dewey Foundation-fastener, \$1.25; by mail, \$1.50.

Untested Queens, 1, \$1.00; 6, \$5.50. Tested queens, 1, \$1.50; 6, \$8.50.

Condensed RUSH ORDER Directions.—Sections and supers, give dimensions of sections. Hives and supers, state whether eight or ten frame. Order any article not mentioned; send what you think the price (better send a little more money) and we will even up with foundation or sections or return money. You can rest assured of lowest price and "FALCON" guarantee of satisfaction.

Save time by ordering of nearest dealer.

Eastern States

New York—Deroy Taylor, Lyons; Hudson Shaver & Sons, Perch River; Charles Stewart, Johnstown; W. T. Falconer Mfg. Co., Falconer; C. B. Howard, Romulus.
 Pennsylvania—Northwestern Border—W. T. Falconer, Mfg. Co., Falconer, N. Y. Western
 —A. M. Applegate, Reynoldsville. Southeastern—J. R. Rambo, Collingdale.
 New England States—Ross Bros. Co., 90 Front St., Worcester, Mass.; Cull & Williams Co., 180 Washington St., Providence, R. I.

Western Beekeepers

Pacific Coast—J. C. Frohlinger, 257 Market St., San Francisco, Cal.
 In the Extreme South—J. W. Reid, Uvalde, Uvalde County, Texas.
 At the Railroad Distributing Center—C. C. Clemons Bee Supply Co., 130 Grand Avenue, Kansas City, Mo.

Middle-State Beekeepers

On the Western Border—C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
 In the Center—H. S. Duby, St. Anne, Ill.
 On the Southern Border—Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
 On the Eastern Border—W. T. Falconer Mfg. Co., Falconer, N. Y.

Southern Beekeepers

In the Extreme South—J. J. Wilder, Cordele, Ga., and Bradentown, Fla.
 At the Apex of Distribution—Fred W. Muth Company, 51 Walnut St., Cincinnati, Ohio.
 In the Southwest—J. W. Reid, Uvalde, Uvalde County, Texas.

OUR RED CATALOG, the most logically arranged catalog ever published, sent postpaid. Simplified Beekeeping, a concise beginners' treatise, free.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Falconer, N. Y.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 **WHITE.**—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 **LIGHT AMBER.**—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 un-

capped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30. Boston, May 18. **BLAKE-LEE CO.**

KANSAS CITY.—There is no new comb honey on our market, and no old comb in jobbers' hands. There is a little extracted which we quote at 8 to 9. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, May 20.

DENVER.—We have no comb honey to quote. Our market is entirely cleaned up. Our jobbing quotations on white extracted are 9 cts.; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.

Denver, May 15. **F. Rauchfuss, Manager.**

INDIANAPOLIS.—White comb sells at 18 cents in ten-case lots. Amber grades are in slow demand at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. Jobbing houses are well stocked, but producers are not now offering any honey. Beeswax is in good demand, and producers are being paid 31 cts. per lb.

Indianapolis, May 17.

WALTER S. POWDER.

ZANESVILLE.—The market remains quiet. The supply of honey still seems to balance the demand. Former prices are still in effect. In small lots, best grades of white comb bring 20 cts. There is practically nothing doing in extracted. Producers are offered for beeswax 29 cts. in cash or 31 in exchange for bee-supplies.

Zanesville, O., May 16.

E. W. PEIRCE.

CINCINNATI.—The market on comb honey is nearly closed up, and there is practically no demand now. Extracted honey has fallen off considerably. Fancy white table honey in 60-lb. cans brings 10 cts.; light amber in 60-lb. cans, 8; amber in barrels, 6½ to 7, according to quality. Beeswax is in fair demand at \$33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, May 20.

C. H. W. WEBER & CO.

CHICAGO.—There is very little doing in honey of any kind at this time, and the prices are simply nominal. There are no fancy grades of comb offered. There is some No. 1 that is bringing from 15 to 16, with the dark and amber grades practically unsalable. Extracted white brings from 8 to 9; amber, 6 to 7. Beeswax is in good demand at from 30 to 32, according to color and cleanliness.

Chicago, May 17.

R. A. BURNETT & CO.

BEES REQUIRE UP-TO-DATE WORKSHOPS

MUTH'S SPECIAL and IDEAL METAL-COVERED Dovetailed Hives are bought by the practical bee-keeper. Honey-board and all regular fixtures with each hive; finest lumber and workmanship used in the manufacture of our Bee Hives. Fully illustrated in our big catalog. Send for it to-day.

THE FRED W. MUTH CO.

"THE BUSY BEE MEN"

51 WALNUT STREET

CINCINNATI, OHIO

We Pay the Highest Cash Market Price for Honey and Beeswax Always

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. Early indications not having been most favorable, it is possible many beekeepers will not have laid in a sufficient stock of supplies, such as sections and foundation, for the clover and basswood crop this month. We are prepared to make up for this oversight by having a large stock of both sections and foundation on hand for instant delivery. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season, consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping-cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

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DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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SAN FRANCISCO.—New comb honey is now on the market in small quantities, and is selling at 15 cts. for No. 1 grade; water-white extracted, 9 to 9½; light-amber, 8 to 8½; lower grades, 5 to 6. The demand for comb honey has been quite marked; and the new crop being now ready, the desire to place the early product is manifest. It is too early to tell how the season will be supplied, as some sections are doing nicely, while in other parts of the State it is necessary to feed the bees. Beeswax brings 27½ to 30 for light; 23 to 26 for dark.

San Francisco, May 17. J. C. FROHLIGER.

ST. LOUIS.—The honey market is unchanged. There is barely any comb honey in this market, and very little extracted. For this reason the quotations are more or less nominal. We quote fancy white comb honey at 16 to 17; No. 1 white, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light-amber California brings 8½ to 9; Southern light amber, 8 to 8½ in five-gallon cans; Southern in barrels and half-barrels, 7 to 7½ for light amber; dark, 6 to 6½. Beeswax, prime, brings 30 cts. per lb. Inferior and impure sells at less.

R. HARTMANN PRODUCE COMPANY.
St. Louis, May 20.

CINCINNATI.—This market is now clean and bare of comb honey, and we are pleased to note this fact for it gives the consumer an opportunity to freshen his appetite for the big fine crop that is sure to come this season. The demand for extracted honey has slackened somewhat, and we are awaiting the arrival of the new crop. We are selling amber honey in barrels at 3½ to 7½, and the finest quality at 8½ to 10, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 30 cts. per lb. in cash, delivered here, or 2 cts. per lb. more in trade. For darker grades than the above we are paying 28 to 29.

Cincinnati, May 22. THE FRED. W. MUTH CO.

NEW YORK.—Since our last, there has been no material change in the condition of the honey market. We really have nothing new to report. It is rather early as yet for the new crop from the South. It may be two weeks longer before we receive any. A few lots of comb honey are still coming in, and find ready sale at former prices. The market on extracted is very quiet, and prices have a downward tendency all along the line. The new crop from the West Indies is now arriving quite freely, and no doubt shipments will increase in quantity as the season progresses. Beeswax is steady at from 30 to 32, according to quality.

New York, May 18. HILDRETH & SEGELKEN.

LIVERPOOL.—Since we last wrote to you our market has been firm. Retail sales of Jamaican honey have been made at \$7.80 to \$8.64, and 91 barrels of West Indian sold at \$6.58 to \$7.92; \$10.08 to \$10.80 is quoted for Californian—not much doing. No sales of Chilian on spot, owing to want of stock. About 500 barrels sold for shipment to various ports at \$5.88 to \$6.12, c. i. l.; for pile No. 3, full prices. Fine white Haiti of any quality should find a good market during the next two months. Stocks of other descriptions have sold at different quotations as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. Stocks of Chilian beeswax are almost exhausted. Retail sales on spot have been made at \$38.08 to \$38.72, and for shipment at \$33.28 c. i. l., net cash, on the basis of f. a. q. Other descriptions are quoted as follows: African, \$32.16 to \$34.42; Jamaican, \$37.72; West Indies, \$32.64 to \$33.28.

Liverpool, May 1.

TAYLOR & CO.

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Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet, giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

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The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

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Town

G.B.C. 6-1-12 State

QUEENS Non-swarming, in Good Time, Superseding. Mated at my private station, with select drones, \$4.00 each. **DR. BRUNNICH, Rheinau, Switzerland.**

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Established 1878

CIRCULATION 35,000.

Issued Semi-monthly

A. L. BOYDEN, Advertising Manager

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A Combined Catalog
and Hand-book on
Bee Culture.

This book is more than a catalog of supplies—contains many helpful hints on bee culture. In the back is a catechism for beginners in bee culture, and even the old-timers can get much useful information out of it.

It describes our complete line of hives, supers, extractors, smokers, etc.

The book costs you nothing. Write for it. At the same time you might tell us what you are needing in bee supplies, and let us write you a special letter on the subject.

Blanke Mfg. & Supply Co.
Blanke Bldg., St. Louis, Mo.

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WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money.

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The A. I. Root Co

The Welcome Honey-flow...

to which you have been looking forward through the long dreary months of winter, is at last at hand. Are you ready to take full advantage of it? Unless, with wise forethought, you have already purchased the hives, sections, foundation, or other supplies, you will probably require, it is high time that your wants crystallize into an order. Forecasts are at best uncertain, but present indications are for a good honey-flow, and its value to you will depend upon the degree of preparation you have made for it. There is yet just time to secure the necessary supplies and properly arrange your equipment. Longer delay may mean regrettable loss.

The following letter will give you a tip as to where you can secure best goods, best treatment, and most prompt delivery.

Mr. E. W. Peirce,
Zanesville, Ohio.

The bee-supplies were received March 4th. The February cash discount was received also. Many thanks for promptness and kind treatment.

Yours truly,
FRED BAILEY.

Thornton, W. Va.

Mr. Bailey is but one of hundreds of beekeepers who find in ROOT QUALITY—PEIRCE SERVICE absolute satisfaction. If you are not already of this number, you will be eventually.

A postal card addressed as below will bring you a large illustrated catalog.

EDMUND W. PEIRCE

136 West Main St., Zanesville, Ohio



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BEEKEEPERS' SUPPLIES

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the beekeeper. Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MO.

ITALIAN AND CARNIOLAN QUEENS!

Nucel, Bees by Pound. Ten-page descriptive list free. Un-
tested, \$1.00. Natural R. C. Golden from imported stock, select
untested, \$1.10; tested, \$1.50. Leaflets, "How to Introduce
Queens," 15c; "Increase," 15c; or both for 25c.

E. E. MOTT, Glenwood, Mich.

Untested Italian Queen-Bees



6 Queens for \$4.50; 3 for \$2.50; 1 for 90 cts.

We usually begin mailing queens in May, and continue thereafter on the plan of "first come first served." The price of one of our Untested Queens alone is 90 cents, or with the old American Bee Journal for one year—both for \$1.60. Three queens (without Journal) would be \$2.50, or 6 for \$4.50. Full instructions for introducing sent with each Queen, being printed on the underside of the address-card on the mailing-case. You can not do better than to get one or more of our fine Standard-bred Queens.

American Bee Journal,

Hamilton, Illinois

GOODS ordered now will reach you in time for your first swarms. More and more are our customers adopting the plan of ordering early.

Yes, we will ship at once, and send Root's Goods only, and at their prices. Save time and freight charges by ordering at Root's Headquarters in Michigan.

M. H. Hunt & Son . . . Lansing, Mich.

General Agents

Opposite Lake Shore Depot

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An experienced beekeeper writes of Queens as being "GOLDEN FAIRIES" only found in Northern Ohio and rarely elsewhere. Being naturally a collector of Queens, I have been successful in securing a number of Queens of various colors and patterns. I have also secured a number of Queens of various colors and patterns. I have also secured a number of Queens of various colors and patterns.

Prices before July

	1	5	10
Select queens	\$ 1.00	\$ 5.00	\$ 10.00
Tested queens	1.50	8.00	15.00
Unselected queens	2.00	10.00	18.00
Breeder's	1.00		
Golden breeders	1.00		
Two-color breeders, no Queens	1.50	14.00	25.00
Three-color breeders, no Queens	2.50	20.00	35.00
Four-color breeders, no Queens	3.50	30.00	50.00
Five-color breeders, no Queens	4.50	40.00	60.00

Selection of Queens tested with bees. All Queens are selected from colonies reared through the year under my own supervision. Queens are tested with bees. Queens are tested with bees. Queens are tested with bees.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

APIARIAN SUPPLIES AND BEES.

This is our first year in the business. Let us quote you special prices on goods needed. Catalog free. Payment about to delivery. Colony of bees with tested Italian queens. In complete hive, \$3.00.
I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apt. 1, Glen Cove, L. I.

1912 QUEENS OF QUALITY AND QUANTITY

We are now ready to fill all orders promptly for our Three-color, Golden, and Italian queens. Our queens are bred under the most favorable conditions. Tested each at six for \$1.00. Select tested \$1.50 each. Breeders' tested \$2.00 each. Write for complete information and prices. We are ready to fill all orders promptly. Send all orders to:

J. W. TAYLOR & SON, BEEVILLE, BEE CO., TEXAS



THE SWARTHMORE APIARIES

are now booking orders for early delivery

PEDIGREED Golden Queens

Swarthmore, Pennsylvania
State Apiary Inspector



SUPERIOR CARNIOLAN QUEENS LINE BRED. . . .

Send for U. S. Canada, Mexico, and Cuba. Select queens from June 1st to August 1st and September 1st. Each \$1.00 per queen, tested \$1.50. \$2.00 per queen. Breeders' at \$2.50 per queen. Ask for our paper. Superintending of the Carniolan Bee - expanding our system of selection and breeding. It's free.

ALBERT G. HANN, Pittsdown, New Jersey
Scientific Queen-breeder

MILLER'S STRAIN Red-clover ITALIAN QUEENS

By patent mail, after June 1st to 10th, or money refunded. Send \$1.00 for superior queen for business gentle, no better than Miller's. Just now having the three-colored Northern bees, tested and registered, winter well, but inclined to swarm. Bred from best leather-colored, long-tongued, red-clover strains. Tested \$1.00 each, \$1.50 dozen, \$2.00 select. Unselected \$1.50 each, \$2.00 dozen, \$2.50 select. Satisfaction guaranteed. I. F. MILLER, beekeeper of Brookville and Reynoldsburg, Pa., a queen specialist for 15 years, is agent and breeder for E. A. Miller. Send all orders.

I. F. MILLER, Rt. 2, Oil City, Pa.

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Successors to YORK HONEY & BEE-SUPPLY COMPANY Send for catalog. ENOUGH SAID.

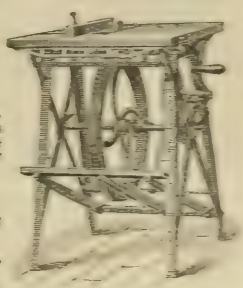
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This cut represents our combined circular saw, which is made for bee-keepers use in the construction of their hive sections etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



PLENTY OF QUEENS READY TO MAIL NOW

At the following prices: Untested, \$40 each; 12 for \$3.00; \$65.00 for 100. Tested, \$1.00, 12 for \$10.00; \$75.00 for 100. I have some fine breeders for \$5.00 each.

B. M. CARAWAY, MATHIS, TEXAS

THE IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Luciana, Carniola (Kranj), Austria
Experts only pure *Bombus terrestris* bees. Write for London and other bee.

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\$1.00 each; six for \$5.00; twelve for \$9.00—
untested and warranted.
J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

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I am enclosing herewith one of our latest queen-rearing state. It is a queen-rearing state, and contains all that is required for the queen-rearing state. It is a queen-rearing state, and contains all that is required for the queen-rearing state. It is a queen-rearing state, and contains all that is required for the queen-rearing state.

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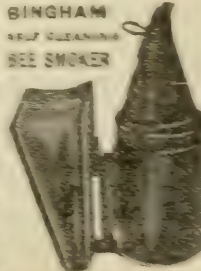
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Inset on "Old Reliable" Bingham Smokers, for sale by all dealers in beekeepers' supplies. For over 20 years the standard in the country. The smoker will give a fine smoke in the smoke, direct from the smoker, direct from the smoker, direct from the smoker, and so on. Smoker engine 4-inch each, \$3.00; 5-inch, \$3.50. Smoker engine, each, \$2.00; 5-inch, \$2.50. Smoker engine, 4-inch, each, \$1.50; 5-inch, \$2.00. Little wonder, 4-inch, each, \$1.00; 5-inch, \$1.50. Smoker engine, 4-inch, each, \$1.00; 5-inch, \$1.50. Manufactured by H. H. JEPSON.

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(Twenty-third year.)

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Big stock of ROOT'S GOODS always on hand. Orders go out same day received.

Can ship Chicken Feed, Swift's Beefscraps, Crystal Grit, Oyster Shells, etc., with your Bee supplies at wholesale prices.

Write us your wants.

**Honey and
Beeswax Wanted**

Catalog Free

S. J. GRIGGS & CO.
25 N. Erie Street

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DEPOSIT BANK COMPANY**
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E. W. SPITZER, Cashier

The Bank that Pays 4 per cent

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1912. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it MUST be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay? We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making, and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make ROOT'S SECTION-HONEY BOXES to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count; and you, Mr. BEEKEEPER, if you will buy ROOT'S SECTIONS, will understand why.

PRICE LIST OF SECTIONS

4¼x4¼ Beeway Sections—2 inch, 1½, 1¾, 1¾, or 7 to foot wide.

We send 1½ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	\$.80	\$.70	7 lbs.
250	1.60	1.40	18 "
500	2.75	2.50	35 "
1000	5.50	5.00	70 "

Plain or No-beeway Sections—4¼x4¼x1½, 1½, or 1¾; 4x5x1¾ or 1½; or 3½x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	\$.80	\$.70	6 lbs.
250	1.60	1.40	15 "
500	2.75	2.50	30 "
1000	5.25	4.75	60 "

Price of larger quantities quoted on application.

THE A. I. ROOT COMPANY, MEDINA, OHIO

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Distributing Agents: Everywhere

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

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Agents Everywhere.

Hamilton, Illinois

**THE COAST LINE
TO
MACKINAC**

CITY OF CLEVELAND III CITY OF DETROIT III



**DETROIT,
CLEVELAND,
BUFFALO,
NIAGARA FALLS**

**TOLEDO
PORT HURON
GODERICH
ALPENA, ST. IGNACE**

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LAKE LINES**

THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most
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WHERE YOU CAN GO

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every other trip.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

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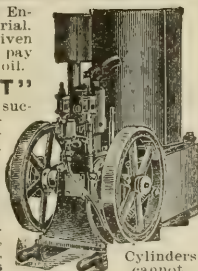
Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No explosion from coal oil.

AMAZING "DETROIT"

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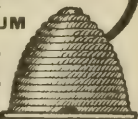
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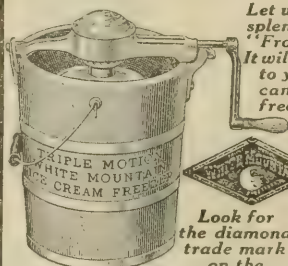


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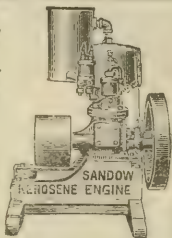
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The author shows not only how to control swarming, but how to treat foul brood without shaking, and discusses in a comprehensive way many other down-to-date apicultural problems and their solutions.

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MISCELLANEOUS HAND-BOOKS.

5 | A B C of Carp Culture, by Geo. Finley..... 25

7 | A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 50c; cloth, 75c, mail \$5c. This is T. B. Terry's first and most masterly work.

It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded, not only in getting more potatoes, but even better ones, and in producing them at less expense also, than by any plan or system be-

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fore the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

5 | A B C of Strawberry Culture,** by T. B. Terry.. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.

After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing: in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6 | Asparagus Culture..... 40

6 | Alfalfa Culture..... 40

8 | Barn Plans and Out-buildings*..... 90

2 | Celery for Profit, by T. Greiner**..... 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 | Fruit Harvesting, Storing, Marketing, etc..... 75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, storing, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

| Farming with Green Manures, postpaid**..... 90

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7 | Farm, Gardening, and Seed-growing**..... 90

10 | Fuller's Grape Culturist*..... 1 15

5 | Garden and Farm Topics, Henderson**..... 60

12 | Gardening for Pleasure, Henderson*..... 1 10

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your home and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 | Gardening for Profit**..... 1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 | Gardening for Young and Old, Harris**..... 90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter

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Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage

Plants..... 20
This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft .. 1 15**

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft.....1 15**

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper* 20**5 | Gregory on Squashes, paper*..... 20****5 | Gregory on Onions, paper*..... 20**

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05**5 | Home Pork-making; 125 pages, illustrated..... 40**

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheapens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay.....1 35**

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10 | How to Keep Well and Live Long 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

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ness, almost any person who picks up Greiner's books will like to read them through.

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This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

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By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

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The above book will be clubbed with GLEANINGS for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book post-paid for 75 cents.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all through our poultry books and journals.

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Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

5 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Do-

ing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth

8 | Same, paper covers..... 40

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WANTED.—Bees in hives, cages, by the pound, or five-frame nucleus. Will accept carload or less. Southern beemen, respond. F. B. CAVANAGH, Hebron, Ind.

WANTED.—Every beekeeper to try a Boyum foundation fastener. See advt. on page 8, May 1st issue, or send for circular. Address THE BOYUM APIARIES Co., Rushford, Minn. U.S.A.

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WANTED.—A man for bee and some farm work. Give particulars in first letter. W. L. COGGSHALL, Groton, N. Y.

WANTED.—Young man with some experience to assist in our large apiaries. Give age, height, weight, previous experience in full, wages, references, all in first letter. No liquor nor tobacco. E. F. ATWATER, Meridian, Idaho.

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FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

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FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce overstock. A. G. WOODMAN Co., Grand Rapids, Mich.

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"Jinks" foundation fastener will cut and fasten a ¼-inch to a 2-inch in a 1-lb. section. Cuts and fastens at same time. A ¼-inch starter below almost makes sure of straight combs and few culls. Write me. D. S. JENKINS, Las Animas, Colo.

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Root, Hilton, and other chaff hives; Danz, and eight and ten frame dovetailed hives; hundreds of supers, all painted; Alley queen-trap; Alexander feeders and other beekeepers' supplies, at less than half price. This chance may never occur again. Particulars on request. Wanted, 300 or less stocks of bees—any style of hive or box. A. W. SMITH, Birmingham, Mich.

FOR SALE.—About 100 Langstroth eight-frame hives. Frames well wired and built out. About 400 frames which contained brood, and 400 clean, used only for extracting. Two-story with bottom-board and lid, at \$2.50. Single-story with bottom-board and lid, at \$1.50 on board Chillicothe, Mo. Also about 200 supers with shallow extracting-combs built out, Dadant or Jumbo size, at \$1.00 per super, with frames. B. O. Chillicothe, Mo. No foul brood, but heavy winter losses, and will sell at the above bargain if taken quickly. Address H. 25569, GLEANINGS, Medina, O.

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FOR SALE.—Bees, \$7.50 per colony.
WM. C. DAVENPORT, 7222 Rogers Av., Chicago, Ill.

Well-bred bees and queens. Hives and supplies.
LINCOLN MCCARGAR, Los Gatos, Cal.

Golden Italian queens, ready to mail, \$1.00.
J. B. CASE, Port Orange, Fla.

Tested three-banded Italian queens ready to mail
at 75 cents each. S. E. MERRILL, Easley, S. C.

Golden Italian queens, nuclei, and full colonies.
See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAST, Factoryville, Pa.

FOR SALE.—Full colonies of pure Italian bees in
eight-frame dovetailed hives with Hoffman frames,
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Front Line Italian queens, well bred and hardy.
After June 1, 6 for \$4.50. Satisfaction guaranteed.
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Virginia queens, raised in full colonies, ready by
May 1. All dead ones replaced free.
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honey, gentleness, and prolificness. One, \$1.00; 6
for \$5.00. WM. S. BARNETT, Barnett's, Va.

FOR SALE.—100 colonies of bees, free from foul
brood; also 50 empty hives, supers, etc.
S. E. TENNANT, Schoharie, N. Y.

FOR SALE.—Italian queens, \$1.00 each. Write for
prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Golden untested queens at 80 cents
each or \$8.00 per dozen. Safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—Golden Italian queens. Tested, \$1.00;
select tested, \$1.25; untested, 70 cts.; dozen, \$8.00;
after July 1, untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

A limited number of untested Italian queens of
Geo. M. Steele's stock; prolific, gentle, carefully
mated; 75 cts. each; \$7.00 per dozen.
A. P. FELLOWS, 4006 Chestnut St., Philadelphia, Pa.

Queens from Georgia. Blacks and hybrids.
Three for \$1.00. Tested red-clover Italians, \$1.00
each. Safe arrival guaranteed.
JOHN W. CASH, Bogart, Ga.

Vermont queens and bees of quality. Home
strain crossed with best honey-gatherers I ever
owned. Untested, \$1.00 each; six for \$5.00. Nuclei,
\$1.00 per frame and price of queen.
H. WILLIAM SCOTT, Barre, Vt.

QUEENS.—Three-banded Italians only. Tested,
\$1.00 each; untested, \$1.00; \$9.00 per dozen. Send
for price list. No foul brood.
J. W. K. SHAW & Co., Loreauville, La.

Queens and half-pound packages. A strain of
three-banded Italian honey-gatherers now ready
for you. Satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

Italian queens, unt., 75 cts.; tested, \$1.25. Cypri-
ans, Carniolans, Banats, Caucasians, \$1.00 to \$1.50;
two-fr. nuclei, \$2.00; supplies; honey-packages.
W. C. MORRIS, 74 Cortlandt St., New York City.

FOR SALE.—Golden untested queens at 75 c. each,
or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00;
select tested, \$2.00, or 6 for \$10.00. Safe arrival and
perfect satisfaction guaranteed. R. O. COX,
Box 8, Garland, Ala.

Colonies of Italian bees in L. hives, 10-fr., built on
full brood-frames, wired, body and shallow super,
redwood dovetailed, three coats white sheeted lids;
each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden Italian queens that produce golden bees,
the brightest kind. Gentle, and as good honey-
gatherers as can be found. Each \$1.00; six, \$5.00;
tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Italian queens of Superior strain, from grafted
cells built in strong colonies. No foul brood or other
disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY CO.,
College City, Cal.

Nucleus and full colonies. Bees by the pound.
Apiaries inspected for brood diseases. Tested and
better grades of bees. Root's bee supplies. Write
for circular and catalog. FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

FOR SALE.—Early "Italian" (Frofalcon) queens.
March delivery, untested, \$1.50 each; April, \$1.25.
Tested queens 50 cts. additional; select tested, \$1.00
extra. JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

Golden and three-banded Italian queens. Tested,
\$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Un-
tested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each.
There is no disease here. Bees, per lb., \$1.00; nu-
clei, per frame, \$1.25. C. B. BANKSTON,
Buffalo, Leon Co., Texas.

Goldens that are golden. Queens that produce
golden-to-tip workers, hardy, and honey-getters; a
race of bees that has taken 15 years to produce,
and will please all who try it; have had as high as
300 lbs. surplus to hive in one season. Will replace
all mated \$1.50 queens. Pure matings guaran-
teed. Queens, \$1.00 to \$2.00. Send for booklet.

I am booked full on golden queen orders until
June 15, 1912
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

\$500 worth of nuclei or more. If you want the
lot, come with the cash and help prepare them to
ship. Sealed brood, \$1.00 per frame; honey-frames,
50 cts. per frame. Queens, 1 year old, 50 cts. to \$1.00
each—your choice. I will furnish 50 chaff hives,
single-walled hives, or five-frame nuclei for the
lot to ship them in.

MRS. S. WILBER FREY, Sand Lake, Mich.

FOR SALE.—Italian queens, bred from the best
honey-gathering strains obtainable. Untested, 75
cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50.
Nuclei without queen, one-frame, \$1.50; two-frame,
\$2.00; three-frame, \$2.75. For queens and nuclei in
quantity lots, and bees by the pound, write for
prices and circular.

ROBT. B. SPICER, Wharton, N. J.

Our golden Italian queens produce the brightest
and gentlest golden bees that we ever had; great
honey-gatherers, and not bad robbers. Our three-
band are the best of their kind. Price of either,
untested, \$1.00; tested, \$2.00; breeders, \$3.00. We
will make a very low price later in the season.

C. W. PHELPS & SON,
Dealers in beekeepers' supplies, Binghamton, N. Y.

FOR SALE.—North Carolina-bred Italian queens,
bred for business; none better for honey-gathering;
good recommendations coming in almost every
day. I have Root's and Moore's strain, Davis',
Quirin's, Laws', and choice imported breeders, to
get my fine honey-gathering strain from. I breed
all queens in full two-story colonies running over
with bees at all times. I do not keep any thing but
the red-clover and the goldens in my yards. Try
them and see for yourself. Untested, 75 cts.; doz.,
\$7.00; tested, \$1.25; select tested, \$1.50; extra select
tested, \$2.00; select breeders, \$3.00; extra select, \$5.
H. B. MURRAY, Liberty, N. C.

Position Wanted

Man of intelligence, and steady, 35, now on lemon-ranch, desires position with chance to handle bees. E. BISHOFF, Rt. 1, Box 224, San Diego, Cal.

Real Estate

WANTED.—House on three to four acres, in good locality for beekeeping in West or Northwest, U. S. A. Cash transaction. Address, with particulars, L. BIGELOW, Box 273, Renfrew, Ontario, Can.

Miscellaneous

WANTED.—Copies of GLEANINGS in good condition, for Jan. 15, 1912, and Feb. 1, 1912. Subscribers having a spare copy for either of these dates will please notify us by post card. THE A. I. ROOT CO., Medina, O.

FOR SALE.—A five-passenger two-cylinder 25 h. p. auto, in excellent condition; fully equipped with top, windshield, etc.; been run about 5000 miles. Detachable tonneau, making it handy for pleasure or for hauling; just the thing for a beekeeper. Price \$400. F. O. B. Moreland. No broken parts, no noticeable wear on any of the mechanism. Finish still in nice shape.

THE LEADER, Moreland, Oklahoma.

Indian Runner Ducks

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tomkins strain), S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. YOST, Rt. 4, Winchester, Ind.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited.

ROBT BIRD, Pinckneyville, Ill.

Poultry

Silver-spangled Hamburgs for beauty and eggs; 15 eggs \$1.00. R. O. LINTZ, Rt. 1, Utica, Mich.

FOR SALE.—S. C. W. Leghorn eggs, \$1.00 per setting. Best winter layers; \$4.00 per 100. Pekin duck eggs, 20 for \$1.00. S. J. CARROLL, Ashburn, Va.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkhville, Ill.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$2.75 per 15; \$5.00 per 30; from thoroughbred stock. HENRY WOODWORTH, JR., Box 505, Cheboygan, Mich.

S. C. Black Leghorns. Our birds are winners and great layers. Descriptive circular free; contains full information. Write your wants. Address THE VAN DRUST FARMS, Cedar Grove, Wis.

BUTTERCUPS.—Eggs from three pens of grand birds—15, \$3.00; 30, \$5.50; 100, \$15.00. Satisfaction guaranteed. RIVERVIEW POULTRY FARM, Union City, Mich.

Prize-winning S. C. R. I. Reds; thoroughbred White Orpington, Barred Rocks, Indian Runner ducks, fawn and white. Eggs and chicks.

DAVID M. HAMMOND,

Woodside Poultry-yards, Rt. 5, Cortland, N. Y.

Strictly fresh eggs, direct from our own poultry-yards, in both white and brown color. Also laying pullets. Illustrated catalog free. Write to

TAYLOR'S POULTRY YARDS,
(Sales Department.) Lyons, N. Y.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Imperial Pekin duck eggs, same price. Satisfaction guaranteed. W. O. ROUDABUSH, Hagerstown, Md.

Real bargains. In stock, 2-lb. pullets, chicks, eggs; heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns, Pekin ducks—the kind we all want. No strikers during winter. Catalog free. CRYSTAL SPRING FARMS, Rt. 3, Lititz, Pa.

Bee-keepers' Directory

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

(Organized 1870)

National Beekeepers' Association

Objects

The objects of this Association shall be to aid its members in the business of beekeeping; to help in the sale of their honey and beeswax; and to promote the interests of beekeepers in any other direction decided upon by the Board of Directors.

Officers

President—George W. York, Chicago, Ill.
Vice-Pres.—Morley Pettit, Guelph, Ont., Can.
Secretary—E. B. Tyrell, Detroit, Mich.
Treasurer—N. E. France, Platteville, Wis.

Directors

E. D. Townsend, Chairman, Remus, Mich.
Wesley C. Foster, Boulder, Colo.
Franklin Wilcox, Mauston, Wis.
J. E. Crane, Middlebury, Vermont.
J. M. Buchanan, Franklin, Tenn.

Annual Membership dues \$1.50, one-third (50 cents) of which goes to the local branch where such branch is organized.

Send dues to the Secretary, E. B. Tyrell.

Special Notices

By OUR BUSINESS MANAGER

Our Philadelphia manager, Mr. Wm. A. Selser, expects to continue lectures on beekeeping again this year on our roof at 10 Vine Street, Philadelphia, Pa., during May and June, every Tuesday and Friday, between 11 and 12 o'clock. Visitors desiring to see the actual work with the bees, and the various manipulations of the hives, will be welcome at these demonstrations. Of course, visitors are welcome at our store during all business hours, but for lectures and demonstration work are invited particularly at the hours named.

BEESWAX LOWER.

Because of the heavy winter loss of bees there is an increasing lot of beeswax being offered, as well as a restricted demand for foundation. We have a large supply on hand which should supply our needs for the rest of this season. We quote for shipments after this date 28 cts. cash or 30 in trade, delivered here or at our branch stores.

SECOND-HAND CANS.

Just after going to press with our last issue we received an order for a carload of second-hand cans which have been shipped to California. We still have several hundred cases, but not enough for another carload as yet. We shall be pleased to receive orders for what stock we have, as long as it lasts—\$3.00 for 10 cases; 25 cases or more, 25 cts. per case of two cans.

JONES PATTERN UNCAPPING-KNIVES.

We have finally secured a sample lot of three dozen Jones pattern honey-knives with blade 1½ in. wide across the face, and two wide bevels meeting on the opposite side. There are those who consider this style of blade superior to the Bingham. We can furnish these, while they last, at \$1.00 each, and would like to get them out for trial this season so as to determine whether they are worthy of a place in our catalog for next season.

Special Notices

By A. I. Root

"HOW TO TELL THE STORY OF LIFE."

The above is the title of a book of a little more than 50 pages, by Professor T. W. Shannon, of Fredricktown, Mo. Professor Shannon has not only written several books, some of which have been reviewed in these columns already, but he is traveling and giving lectures on this particular matter of educating our children in regard to sexual matters before they have a chance to have their minds poisoned along this very line by vicious associates. May God strengthen our good brother that he may long continue in the good work that he is doing for the children of our nation just as they are budding into manhood and womanhood. Now, in addition to the excellent teaching of this book I would suggest that an *incubator* is the best object-lesson in the world for the children. With white-shelled eggs, a magnifying-glass, and a good egg-tester, such as I have described, the germ of the chick will be visible in the egg at the end of two days; and the growth is plainly visible every night and morning from that time on. The children, with their sharp eyes, will hardly need a glass or strong spectacles, such as I use; and the growth is so rapid they can easily see the change between night and morning and morning and night. Now, it is an easy matter to explain, after they have witnessed these wonderful developments, that humanity comes into being in much the same way—the commencement is microscopic. In a few days the beating of the little heart can be plainly seen; the growth of the circulatory system, and finally the motion of the chick as it begins to find out it has legs and wings. Explain to the children the consequences of rough handling or lack of heat at this delicate stage. From this the transition is easy to explain to them

how boys and girls are crippled or ruined for life, or sent to the insane or idiotic asylum just because of improper meddling at a critical time with God's sacred and delicate handiwork. This book will be mailed to any address for 15 cents.

BASSWOOD TREES FOR HONEY, LUMBER, SHADE, AND OTHER PURPOSES.

Toward forty years ago I decided that basswood or linden yielded *more* honey in a short space of time than any other tree or plant known. This basswood honey is almost as light in color as any other known. Perhaps the California water-white sage would be ahead in that respect. But where well ripened, it is so thick that you can turn over a saucerful of it in average weather without having it spill. When thoroughly ripened like this, most people consider it equal to the best grades of white-clover honey, if not superior to them. Of course, raw unripened basswood honey, with its strong aromatic flavor, is seldom liked by anybody. It can, however, be ripened artificially, either by the sun evaporators or properly constructed ovens, so as to be almost if not quite equal to that ripened on the hive. Well, as a matter of course, after GLEANINGS has been teaching this, year after year, there has been a corresponding demand for basswood trees for shade in our towns and cities, and for lumber where timber is grown. I think it was more than forty years ago that I sold several thousand basswoods to be planted in the city of Dayton. Many of them are now of large size. Until quite recently we have been sending our basswood trees, both in the fall and spring, by mail and express, handling many thousands of them yearly. Since the writer has been getting well along in years, and our manufacturing industry has assumed such large proportions, there has not seemed to be anybody here in Medina to keep up growing basswoods from the seeds and caring for them in the nursery; and I have several times mentioned the fact that there is a good opening for some beekeeper who has the land, and is located conveniently for a mail and express business. By the way, I have frequently had seedlings that came up in the spring grow three feet the first season, and such trees sold readily and rapidly for eight or ten cents each, depending on the number ordered. Of course, most of our nurserymen offer basswood or linden trees; but they generally want from 25 cts. to \$1.00 apiece, which beekeepers can not afford to pay.

Now I am pleased to note that a great nursery firm located at South Framingham, Mass., near Boston, on a place known as the "Little Tree Farms," and doing business under the name of the American Forestry Co., is growing basswoods not only by the hundreds and thousands, but by the hundreds of thousands; and their prices for quantities are quite similar to what we used to offer. For instance, seedlings by the thousand, 6 to 12 inches high, are offered as low as \$1.25 per 100; for transplanted trees, 2 to 3 feet high, only \$5.00 per 100. Of course, if you make small orders, say for 5, 10, or 25 trees, you would have to pay a comparatively larger price. They have the American basswood, the large-leaved European linden, and the small-leaved European; and, what seems to be a little singular, the European lindens are even *cheaper* than the American.

By the way, we have always been in the habit of using the words "basswood" and "linden" interchangeably; but this firm calls the American tree a "basswood," while the foreign trees are called "linden." I can not tell which of the two yields the more honey, if there is any difference in this respect. We have both kinds growing on our place here, and one would hardly notice the difference unless his attention were called to it. It seems as if it would be a splendid thing for beekeepers to buy a lot of the little seedlings at \$1.25 per 100 or \$8.00 per 1000, and transplant them into very rich garden soil. Then they can be moved to their permanent place, say when they are from 5 to 10 feet high. In this way the postage or express charges would be comparatively light.

I know I am giving this firm a pretty good write-up; but when you see the literature they send out with their catalog I think you will decide with me that their literature is educational. I did not know before that there was an institution in the world that was doing so much in the way of growing forest trees of every description. They also furnish seeds of the different basswoods.

Requeen your bees this season, and get the best results from your bees. Our strain of Italians, either three-banded or golden, will make a marked improvement apparent in your bees, and increase your honey profits. We can furnish queens promptly at the following prices:

.90 for untested;
\$1.00 for tested;
\$1.50 for select tested;
\$5.00 for the best breeding queens.

Full colonies of bees in new ten-frame 1½-story Root hives for \$10.00, f. o. b. Beeville.

Even though the season is somewhat advanced, we have been keeping our stocks of supplies right up, and you will find us ready to make immediate shipment of any thing needed in the line of hives, frames, foundation, sections, extractors, cans, shipping cases—in fact, a complete line of Root's goods as listed in their catalog and ours, the only difference being that the southern buyer has the benefit of our stock, ability to handle orders promptly, and the saving on transportation charges. We sell goods in original factory packages, whether you buy in large quantities or in single lots.

Our stock of cans and shipping cases is more complete than ever, and we can guarantee satisfaction with anything along this line. Honey attractively put up is half sold, and it pay you to try our packages this season.

Orders mailed to us will have the same personal attention that you would have should you visit us.

TOEPPERWEIN & MAYFIELD

Corner Nolan & Cherry Streets
SAN ANTONIO, TEXAS



The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on MR. HUTCHINSON'S life by Prof. A. J. Cook, in GLEANINGS:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our bee-keeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work, to which he was so entirely devoted. His quick apprehension and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justify entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

Most fortunate for all bee-keepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of ADVANCED BEE CULTURE. Only a few short days after an editorial by Mr. E. R. Root, editor of GLEANINGS IN BEE CULTURE, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly)—known and read by bee-keepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and GLEANINGS one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 80 cents extra; Canadian postage, 30 cents extra.

Printype — OLIVER Typewriter

The Only Writing Machine in the World
that Successfully TYPEWRITES PRINT

--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an ordinary typewriter—*payable in pennies!*

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of type-written matter as *readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's *printing presses*.

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and *character* into typewritten correspondence. It makes every letter, every numeral, every character, "*as plain as print.*"

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "Printype" sprung resulted from the success of our type experts in equipping a typewriter used in our offices to write "The Oliver Typewriter" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "ebony" trade-mark type, disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "Printype."

The Public's Verdict

That the public is overwhelmingly in favor of Printype is impressively shown by this fact:

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* Printype in preference to the old-style type.

Within a year, at the present rate, *90 per cent of our total sales will be "Printypes."*

Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is again to the fore with another revolutionary improvement — *Printype, the type that prints print!*

To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "17-Cents-a-Day" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase.

The masses want The Oliver Typewriter because it stands the test of the largest corporations.

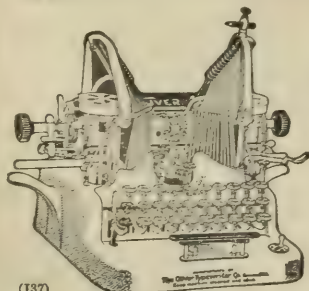
Meet "Printype"—You'll Like Its Looks

Ask for Specimen Letter and "17-Cents-a-Day" Plan.

Make the acquaintance of Printype, the reigning favorite of typewriter-dom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "17-Cents-a-Day" Plan on request. Address Sales Department,

The OLIVER Typewriter Company

116 Prospect St., Cleveland, O.



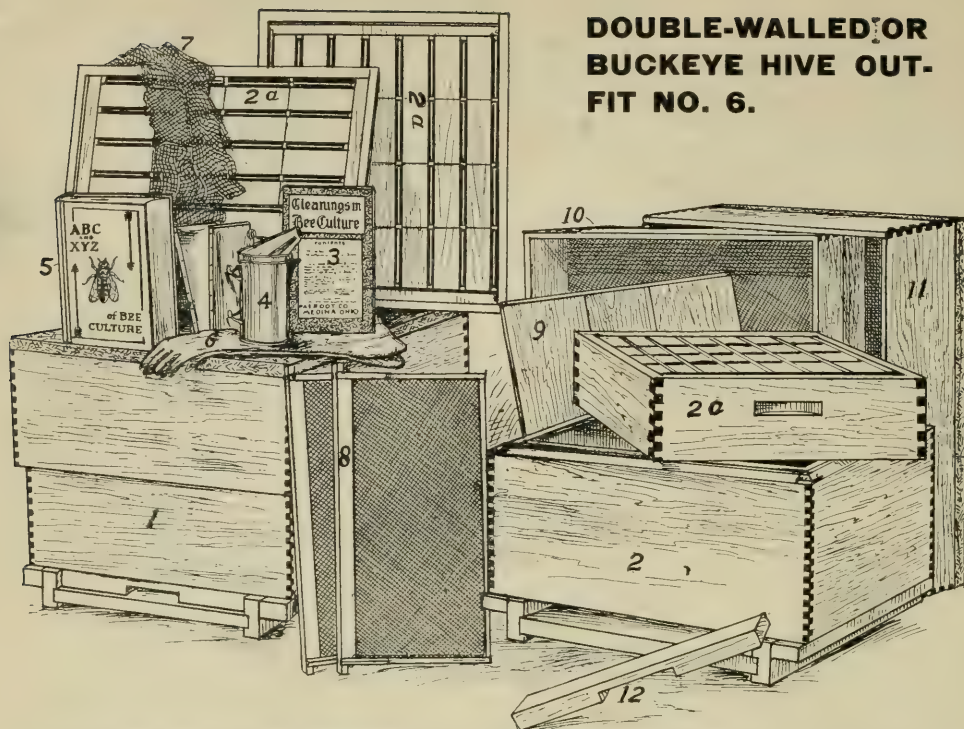
Gleanings in Bee Culture



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MUSEUM

VOL. XL. JUNE 15, 1912, NO. 12.

DOUBLE-WALLED OR BUCKEYE HIVE OUT- FIT NO. 6.



The double-walled hives suggested in this outfit are adapted for outdoor wintering, relieving the bee-keeper of the work of preparing the hives for winter; and for those who want to keep bees for pleasure as well as profit, we recommend this outfit most highly.

Following is a list of articles included in the above outfit, numbered to correspond:

No. 1—Full Colony of Bees in Ten-frame double-walled Buckeye Hive, Complete with 28 Sections	14.50
1 Tested Italian Queen for Above	3.00
No. 2—Empty Hive Complete for Hiving New Swarm	5.95
No. 2A—Two Extra Comb-honey Supers	2.10
No. 3—One Year's Subscription to Gleanings in Bee Culture (large semi-monthly, illus.)	1.00
No. 4—Standard Root Smoker	.85
No. 5—A B C of Bee Culture	\$1.50
No. 6—Pair of Bee-gloves	.50
No. 7—No. 2 Bee-veil	.60

No. 8—Shows two brood-frames with full sheets of foundation, from which the bees build honey-comb. There are ten of such frames in each of the hives. No 9 is a super-cover. No. 10 is a tray which is filled with chaff or other packing material to afford protection in winter. No. 11 is the hive cover or roof which telescopes the hive-body as shown in No. 1.

SPECIAL OFFER { Delivered at any express office in U. S. east of Mississippi River and north of Ohio River. (Bees can not be safely shipped till after May 1st.) **\$30.00**

For delivery to points outside of above free limit, we will make terms on application.

The investment here is a little more than for some of the other outfits we furnish; but if you expect to keep a few bees only, just for recreation or to make enough honey for your own table, you will not need to make any further purchases for some time, except a few extra sections the second season.

The A. I. Root Company, Medina, Ohio

Enclosed find draft for \$30.00, for which please send me Outfit No. 6, as listed above. I understand that you guarantee safe arrival and prepay all charges, if north of Ohio River and east of Mississippi River.

Name

Town

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For "falcon" Beekeepers' Supplies

QUICK PRICE LIST for Those who do not have a Red Catalog

Beeway Sections	No. 1 Quality	No. 2 Quality
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500	2.75	2.50
1000	5.50	5.00
5000	23.75	21.25

Plain Sections, 25c per M less.

	1 lb.	5 lbs.	50 lbs.
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Light Brood Foundation, per pound,	58c	57c	52c

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No. 14 1-story Dovetailed hive,	1	5	10	1	5	10
cover, body, bottom, and frames,	\$1.50	\$7.00	\$13.50	\$1.50	\$7.50	\$14.50

Dovetailed Supers complete without sections and starters—

No. 2, 4¼x1½ sections	} 8-frame 10-frame		
No. 2B, 4¼x1½ sections			
No. 2C, 3½x5 sections		5 10	5 10
No. 2F, 4x5 sections		\$2.50 \$4.80	\$2.75 \$5.20

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OUR RED CATALOG, the most logically arranged catalog ever published, sent postpaid. Simplified Beekeeping, a concise beginners' treatise, free.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Falconer, N. Y.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section of this grade to weigh less than 13½ ounces.

Cases of half separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade; wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

DENVER.—We have no comb honey to quote, as our market is entirely cleaned up. Our jobbing quotations on white extracted are 9 cts.; light amber, 8; strained, 6½ to 7½. We pay 26 cts. in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.

Denver, June 3.

SAN FRANCISCO.—New comb honey is quotable at 15 to 16 cts.; water-white extracted, 9 to 9½; light amber, 8 to 9; amber, 7 to 8; dark, 5 to 6. Beeswax, 23 to 28. A few small shipments of new honey have been received, and the demand for fancy comb exceeds the supply.

San Francisco, May 31. JOHN C. FROHLIGER.

ZANESVILLE.—The local market is bare of comb honey, with no offerings at the present time. Up to this time, for some weeks past the demand has been exceedingly slack; but some revival is anticipated by the time the new crop arrives. Best white comb would now command about 20 cents—the limit this market will stand. Extracted is quiet, with prices nominally 11 to 12 for white. For beeswax, producers are being offered 29 cts. in cash, or 31 in trade.

Zanesville, June 3.

E. W. PEIRCE.

LIVERPOOL.—Since we last reported to you, our market for beeswax has been firm, and about 40 packages of Chilean and Peruvian sold at full prices from \$33.24 to \$39.32 per cwt. Further arrivals are expected, and the demand is perhaps not quite so brisk. Four tons of Chilean, f.a.q., sold at \$36.28, c. i. f., net cash. Other descriptions are quoted as follows: African, \$32.16 to \$34.48; Jamaican, \$37.72; West Indies, \$32.64 to \$36.28. The demand for honey of late has been disappointing. Considerable arrivals of Hayti and Jamaican in London have been selling at rather lower prices than we are asking here. Sales of Chilean, pile 3, have been made to the Continent at \$6.12 and \$6.24, i. f.; 200 barrels offer for shipment at \$6.30, without finding buyers. Californian is quoted at \$10.08 to \$10.80. Stocks of other descriptions have sold at different quotations as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilean, \$5.52 to \$8.16; Jamaican, \$6.24 to \$8.16; Californian, \$9.60 to \$10.92.

Liverpool, May 29.

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Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season, consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

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To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dep't.

H. H. ROOT

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(Organized 1870)

National Beekeepers' Association**Objects**

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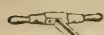
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We are now ready to fill all orders promptly for our Three-banded and Golden Italian queens. Our queens are bred strictly for honey-gathering qualities. Untested, each, \$1.00, or six for \$5.00, or \$9.00 a dozen. Tested, \$1.25 each, or six for \$6.50, or \$12.00 per dozen. Select tested, \$1.50 each. Breeders, the very best, \$5.00 each. Write for special prices on lots of 50 to 100 queens. Will replace all dead queens that are dead on arrival, and returned in the cage we mailed them in. 25 years a queen-breeder. Send all orders to

J. W. TAYLOR & SON, BEEVILLE, BEE CO., TEXAS



THE
SWARTHMORE APIARIES
are now booking orders
for early delivery

PEDIGREED
Golden Queens

Swarthmore, Pennsylvania
State Apiary Inspector



SUPERIOR LINE BRED. . . CARNIOLAN QUEENS

Excellent honey-gatherers; gentle; prolific at all times. *The last of June and the fore part of July is the best time to requeen.* Prices: select untested, \$1.00; \$9.00 per dozen; select tested, \$1.50; \$12.00 per dozen; breeders, \$5.00. Discounts in lots of 50 or more. Ask for our paper, "Superiority of the Carniolan Bee." *It's free.*

ALBERT G. HANN,

Pittstown, New Jersey

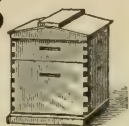
Scientific Queen-breeder

LEWIS BEEWARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.

BLANKE'S BEE BOOK FREE!



**A Combined Catalog
and Hand-book on
Bee Culture.**

This book is more than a catalog of supplies—contains many helpful hints on bee culture. In the back is a catechism for beginners in bee culture, and even the old-timers can get much useful information out of it.

It describes our complete line of hives, supers, extractors, smokers, etc.

The book costs you nothing. Write for it. At the same time you might tell us what you are needing in bee supplies, and let us write you a special letter on the subject.

Blanke Mfg. & Supply Co.
Blanke Bldg., St. Louis, Mo.

PLENTY OF QUEENS READY TO MAIL NOW

At the following prices: Untested, 90c each; 12 for \$9.00; \$65.00 for 100. Tested, \$1.00; 12 for \$10.00; \$75.00 for 100. I have some fine breeders for \$5.00 each.

B. M. CARAWAY, MATHIS, TEXAS

GOLDEN ITALIAN QUEENS

\$1.00 each; six for \$5.00; twelve for \$9.00—
untested and warranted.

J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

is now mailing queens every day except Sunday. These queens are going to almost every State in the Union. A statement in public print says, "The postoffice at Beeville has probably cancelled more stamps on queen-cages than any other postoffice in the world." Whether this is true or not, it is true that Laws' queens are giving eminent satisfaction, and old customers are continually renewing their orders.

I am breeding but the one strain of three-banded Red-clover Stock Italians. A square deal and good queens are all that I can promise. I shall be pleased to have your order, which will be filled in rotation; however, I can also take care of rush orders.

Prices: Single queen, \$1.00; six for \$5.00; 100, \$75.00.

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W. H. LAWS, BEEVILLE, TEXAS

New England Beekeepers Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

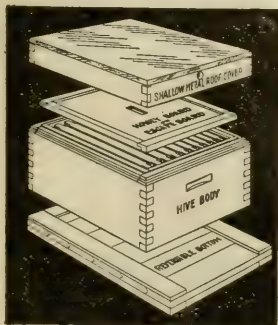
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ITALIAN AND CARNIOLAN QUEENS!

Nuclei, Bacs by Pound. Ten-page descriptive list free. Untested, \$1.00. Natural R. C. Golden from imported stock, select untested, \$1.10; tested, \$1.50. Leaflets, "How to Introduce Queens," 15c; "Increase," 15c; or both for 25c.

E. E. MOTT, Glenwood, Mich.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has $\frac{7}{8}$ material in the outer wall, and is not cheaply made of $\frac{3}{4}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

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Bingham Smokers

**BINGHAM
SELF-CLEANING
BEE SMOKER**



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, $3\frac{1}{2}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

Quality is Economy

You can secure quality here, not only in the goods but also in quick service and low transportation. If you are requiring anything in Bee Supplies, do not allow distance to be a consideration. In many instances I can save time for you, regardless of distance. Quite a few winter losses have been reported, and your requirements may seem small; but small orders receive and deserve the same attention here as the larger ones. Those who have met with winter losses seem to be replacing with improved facilities; and after all they may profit by the losses, and our industry has never been on a better basis than it is to-day. Just this very morning I was much interested in a remark by Mr. H. P. Dean, of Solon, Ind., who left his order here and remarked that he expected a yield from his orchard this season of ten thousand barrels of apples; that trees were producing that had not produced before, and that he believed half the crop could be credited to his apiary.

My catalog of everything required in the beeyard is free, and I should be glad to send it to any who are interested.

WALTER S. POWDER, Indianapolis, Ind.

859 Massachusetts Ave.

New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

"Griggs Saves You Freight."

TOLEDO

FOR ME is the word of every beeman who wants his goods quick.

Big stock of ROOT'S GOODS always on hand. . . Orders go out same day received.

Can ship Chicken Feed, Swift's Beefscraps, Crystal Grit, Oyster Shells, etc., with your Bee supplies at wholesale prices.

Write us your wants.

**Honey and
Beeswax Wanted**

Catalog Free

S. J. GRIGGS & CO.
25 N. Erie Street

THE MODERN PLAN

This bank numbers among its depositors a great many people who find it inconvenient to call at our offices in person, and therefore make use of the mails in depositing their savings with this institution.

Our banking by mail plan is absolutely safe; and, moreover, your financial affairs will be handled with the same promptness and courtesy as tho you made a personal call at the bank.

Write for further information.

**The SAVINGS
DEPOSIT BANK COMPANY**
Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS

A. T. SPITZER, Pres.

E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier

The Bank that Pays 4 per cent

When You Buy Lewis Beeware You Get ———

Lewis Quality—which means that all Lewis Hives are made out of clear white pine, and Lewis sections made out of fine bright basswood. The material in these goods is the best obtainable, and selected by experts.

Lewis Workmanship—The Lewis factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has had thirty-five years of bee-supply experience, the superintendent of bee-hive department twenty-nine years; the superintendent of sections twenty-eight years. These and many other skilled men have a hand in all the Lewis goods you buy.

Lewis Packing—All Lewis Beeware is carefully and accurately packed. A patent woven wood and wire package, made only by the Lewis Company, is employed largely in packing. This makes the package light, compact, and damage-proof.

Lewis Service—Years ago all goods were shipped direct from the factory, with attending high freight rates and delays during the honey season. Now Lewis Beeware can be obtained almost at your own door. Over thirty distributing houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

G. B. Lewis Company, Manufacturers of Beeware, Watertown, Wisconsin

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

Hamilton, Illinois

THE COAST LINE TO MACKINAC



CITY OF CLEVELAND III



CITY OF DETROIT III



DETROIT,
CLEVELAND,
BUFFALO,
NIAGARA FALLS

TOLEDO
PORT HURON
GODERICH
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THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most
economical and enjoyable outing in America

WHERE YOU CAN GO

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every other trip.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.

Philip H. McMillan, Pres.

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Detroit & Cleveland Navigation Company

THE "BEST" LIGHT

20 AWSEK

THE BEST LIGHT CO.

306 E. 5th St., Canton, Ohio

MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

Keep Ants Away
They will not attack or come near
woodwork if it is painted with
AVENARIUS CARBOLINEUM
REGISTERED
and will stay away from beehives
so protected. Write for circular.
Carbolineum Wood Preserv'g Co
Depot 103, Milwaukee, Wis.

Did You Write to Shafer?

SEE AD. IN LAST ISSUE

What's the use?



Why bother to raise so many "good things" unless—

—Unless you *save* them. Your wife can "put up" many kinds of fruit. But it isn't so *easy* to "can" vegetables.

Not—if she *depends* on old-style, narrow-necked, tin-topped, screw-capped jars, that take in only *small* fruit. This year find out the better way to "put up" fruit, and vegetables, too—the

E-Z SEAL JARS

This is the all-glass jar, with the all-glass cap—no metal to taint the fruit—no twisting and turning. No shattering, no splattering. Easy to fill, easy to seal, easy to open and clean.

Don't allow good garden stuff or fruit "to go to waste." Your vegetables and fruit will *keep* in these air-tight, all-glass sanitary jars.

Free Jar—Free Book

Cut out this coupon, take it to your grocer—he will give you one E-Z Seal Jar—FREE. Be sure

and write us for FREE Book of Recipes—it tells many things you should know.

In order to secure free jar, present this coupon to your dealer before September 1, 1912, properly filled out.

HAZEL-ATLAS GLASS CO.
Wheeling, W. Va.

This is to certify that I have received one "Atlas" E-Z Seal Jar free of all cost or obligation. This is the first coupon presented by any member of my family.

Name

Address

TO THE DEALER:—Present this to jobber from whom you received E-Z Seal Jars. All coupons must be signed by you and returned before November 1, 1912. DEALER'S CERTIFICATE. This is to certify that I gave one "Atlas" E-Z Seal Jar to the person whose signature appears above.

Dealer's Name

Address



**Hazel-Atlas
Glass Co.**

Wheeling,
W. Va.

THE Coward Good Sense Shoe

This Coward Shoe provides room for five active toes. Its pliant sole furnishes a natural foot-tread. A perfect fitting shoe, which supports ankle and arch and prevents flat-foot. Economical in price and wear.

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

FOR CHILDREN, WOMEN AND MEN.

Send for Catalog. Mail Orders Filled.

JAMES S. COWARD
264-274 Greenwich St., near Warren St., New York
SOLD NOWHERE ELSE

Lexington Hotel

500 Rooms European Plan
Michigan Boulevard & 22nd St.
Chicago, Ill.

The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

**M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.**



Smooth, velvety ices

After you know the goodness of the frozen dainties you can make with this freezer, ices will be your standard dessert. Easier to make than any other dessert, now that the

Triple Motion White Mountain Ice Cream Freezer

has brought science into ice-cream making. Reduces the freezing time, makes the cream smoother and lighter and increases its bulk by the triple beating. The perfect freezing principle—the can revolves while two dashers work in opposite directions.

Send to us for a copy of our recipe book, Frozen Dainties. We will send it to you free. Tells you how to prepare scores of plain and fancy ices and creams. Address

The White Mountain Freezer Co.

Dept. AO,
Nashua, N. H.



Look for the Diamond
trade mark
on the Wrapper

INDEPENDENCE

FROM the PEANUT FIELDS OF VIRGINIA TO THE ORANGE GROVES OF FLORIDA

THREE CROPS YEARLY
IN THE LAND OF MANATEE ON THE WEST COAST OF FLORIDA

Fortunes are being made in the 6 Sou. States traversed by the S. A. L. Ry. (Va., N. C., S. C., Ga., Fla., and Ala.) raising fruits and vegetables.

Low priced lands. Easy terms. Plenty of water. Healthful climate. In the Land of Manatee on West Coast of FLORIDA. Net \$500 to \$1000 per acre. Quick transportation to big markets. Beautifully illustrated booklet, Free. Write Now.

J. A. PRIDE, Gen. Ind. Agt.,
SEABOARD AIR LINE RAILWAY,
Suite 611, NORFOLK, VA.

10 DAYS FREE TRIAL

We ship on approval without a cent deposit, freight prepaid. **DON'T PAY A CENT** if you are not satisfied after using the bicycle 10 days.

DO NOT BUY a bicycle or a pair of tires from anyone at any price until you receive our latest art catalogs illustrating every kind of bicycle, and have learned our unheard of prices and marvelous new offers.

ONE CENT is all it will cost you to write a postal and everything will be sent you free postpaid by return mail. You will get much valuable information. **Do not wait, write it now**

TIRES, Coaster - Brake rear wheels, lamps, sundries at half usual prices.

Mead Cycle Co. Dept. G113, Chicago

Every Bee-keeper Should Own and Read "The Manual of the Apiary"

By PROF. A. J. COOK

This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany; 540 pages with good illustrations; bound in cloth. Price, by mail, \$1.15; \$1.00 by express or freight. . . . Order from the author,

A. J. Cook, Pomona College, Claremont, Cal.
Or from Dealers in Bee-supplies Everywhere

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Requeen your bees this season, and get the best results from your bees. Our strain of Italians, either three-banded or golden, will make a marked improvement apparent in your bees, and increase your honey profits. We can furnish queens promptly at the following prices:

- .90 for untested;
- \$1.00 for tested;
- \$1.50 for select tested;
- \$5.00 for the best breeding queens.

Full colonies of bees in new ten-frame 1½-story Root hives for \$10.00, f. o. b. Beeville.

Even though the season is somewhat advanced, we have been keeping our stocks of supplies right up, and you will find us ready to make immediate shipment of any thing needed in the line of hives, frames, foundation, sections, extractors, cans, shipping cases—in fact, a complete line of Root's goods as listed in their catalog and ours, the only difference being that the southern buyer has the benefit of our stock, ability to handle orders promptly, and the saving on transportation charges. We sell goods in original factory packages, whether you buy in large quantities or in single lots.

Our stock of cans and shipping cases is more complete than ever, and we can guarantee satisfaction with anything along this line. Honey attractively put up is half sold, and it pay you to try our packages this season.

Orders mailed to us will have the same personal attention that you would have should you visit us.

TOEPPERWEIN & MAYFIELD

Corner Nolan & Cherry Streets
SAN ANTONIO, TEXAS



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

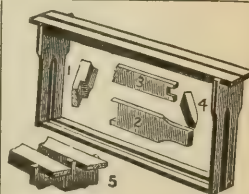
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Distributing Depots in Many
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The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE,
Homestead Farm. Kendala, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin packages, any quantity.
DADANT & SONS, Hamilton, Ill.

HONEY AND WAX WANTED.

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Beeswax. Will pay highest cash price on arrival. Drop us a postal.
HILDRETH & SEGELKEN,
255 Greenwich St., New York.

WANTS AND EXCHANGES

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog.
E. W. PEIRCE, Zanesville, O.

HELP WANTED

WANTED.—Assistant in apiaries the rest of the season.
F. B. CAVANAGH, Hebron, Ind.

POSITION WANTED

Man of intelligence, and steady, 35, now on lemon-ranch, desires position with chance to handle bees.
E. BISHOFF, La Mesa Spgrs., Cal.

MISCELLANEOUS

FOR SALE.—A 4 x 5 anastigmat lens; 1/4 h. p. gasoline-engine; foot-power circular saw.
E. O. WALTZ, Medina, Ohio.

WANTED.—Copies of GLEANINGS in good condition, for Jan. 15, 1912, and Feb. 1, 1912. Subscribers having a spare copy for either of these dates will please notify us by post card. THE A. I. Root Co., Medina, O.

FOR SALE

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—An established apiary. Honey-flow now on. Reason for selling, principal owner died lately—a bargain. H. C. ADLER, Victoria, Texas.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

Frame manipulation made easy with "the Dandy" hive-tool; 20 cts. postpaid.
H. BENKE, Pleasantville Station, N. Y.

FOR SALE.—Get more money for your comb honey. Send for complete free sample of selling plan, to W. S. SHAFER, Dept. G, South Omaha, Neb.

FOR SALE.—60-lb. cans, 25 cts. per case of two. Cases and cans in good condition.
J. A. BUCHANAN, Holliday's Cove, W. Va.

FOR SALE.—Empty second-hand 60-lb. cans, 25 cts. per case of two cans; 100 for \$22.50.
E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—At bargain prices, eight-frame double-wall hives, for short time only, to reduce overstock. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Danzonbaker and Dovetailed hives, with Italian bees and queens. Closing out, eight-frame, \$5.00; ten-frame, \$6.00.
R. B. CHIPMAN, Clifton Heights, Del. Co., Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn. Miss.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand.
L. H. RANDALL, Medina, O.

"Jinks" foundation fastener will cut and fasten a 1/4-inch to a 2-inch in a 1-lb. section. Cuts and fastens at same time. A 1/4-inch starter below almost makes sure of straight combs and few culls. Write me.
D. S. JENKINS, Las Animas, Colo.

Root, Hilton, and other chaff hives; Danz. and eight and ten frame dovetailed hives; hundreds of supers, all painted; Alley queen-trap; Alexander feeders and other beekeepers' supplies, at less than half price. This chance may never occur again. Particulars on request. Wanted, 300 or less stocks of bees—any style of hive or box.
A. W. SMITH, Birmingham, Mich.

REAL ESTATE

FOR SALE.—80 acres cheap; No. 1 location for fruit; hard winter did not kill the fruit-buds on peaches—never has; no disease on peach-trees, and never has been. Soil and location No. 1.
H. S. WHEELER, Rt. 9, Mt. Pleasant, Mich.

FOR SALE.—13 lots, 8-room house, and other improvements; 12 colonies bees, extra hives, supers, extractor, and other fixtures, in academy town; a good location for bees; alfalfa country. Price \$1300.
T. F. CHILD, Northbranch, Kansas.

BEES AND QUEENS

Golden Italian queens, ready to mail, \$1.00.
J. B. CASE, Port Orange, Fla.

FOR SALE.—Bee-yard and bees; 100 Root hives; 500 foundation combs; extractors, etc.
SAMUEL BLAIR, Nutley, New Jersey.

Golden Italian queens, nuclei, and full colonies. See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAST, Factoryville, Pa.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

FOR SALE.—100 colonies of bees, free from foul brood; also 50 empty hives, supers, etc.
S. E. TENNANT, Schoharie, N. Y.

FOR SALE.—Italian queens, \$1.00 each. Write for prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Golden untested queens at 80 cents each or \$8.00 per dozen. Safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—Golden Italian queens. Tested, \$1.00; select tested, \$1.25; untested, 70 cts.; dozen, \$8.00; after July 1, untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Queens from Georgia. Blacks and hybrids. Three for \$1.00. Tested red-clover Italians, \$1.00 each. Safe arrival guaranteed.
JOHN W. CASH, Bogart, Ga.

Hardy northern-grown queens of Moore's strain of Italians, ready the last of June. Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Orders filled and filled in turn.
P. B. RAMER, Harmony, Minn.

Queens and half-pound packages. A strain of three-banded Italian honey-gatherers now ready for you. Satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

Italian queens, unt., 75 cts.; tested, \$1.25. Cyprians, Carniolans, Banats, Caucasians, \$1.00 to \$1.50; two-fr. nuclei, \$2.00; supplies; honey-packages.
W. C. MORRIS, 74 Cortlandt St., New York City.

FOR SALE.—Golden untested queens at 75 c. each, or \$8.00 per dozen; tested, \$1.25 each, or 6 for \$6.00; select tested, \$2.00, or 6 for \$10.00. Safe arrival and perfect satisfaction guaranteed.
R. O. COX, Box 8, Garland, Ala.

Vermont Italian queens and bees of quality. Howe strain crossed with best honey-gatherers I ever owned. Untested, \$1.00 each; six for \$5.00. Nuclei, \$1.00 per frame and price of queen.
H. WILLIAM SCOTT, Barre, Vt.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Italian queens and bees—Root or Doolittle strains direct. Untested, 80 cts. each; \$7.00 per dozen; tested, \$1.00 to \$1.50. No bee diseases. Prompt shipments. Catalog. F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Italian queens of Superior strain, from grafted cells built in strong colonies. No foul brood or other disease in this locality. Untested, \$1.00; 12, \$9.00.
SACRAMENTO VALLEY APIARY CO., College City, Cal.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog.
FRANK M. KEITH, 83½ Florence St., Worcester, Mass.

FOR SALE.—Early "Italian" (Frofalcon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens 50 cts. additional; select tested, \$1.00 extra.
JOHN C. FROHLIGER, 257, 259 Market St., San Francisco, Cal.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Golden Italian queens that are golden to the tip, that will produce golden workers, hardy, and honey-gatherers, that I have worked 15 years to produce, and which will please all who try them. My mating should run up to 90 per cent pure or better. Queens from \$1.00 to \$20.00. Send for booklet.
GEO. M. STEELE, 30 South 40th St., Philadelphia, Pa.

FOR SALE.—Italian queens, bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one-frame, \$1.50; two-frame, \$2.00; three-frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular.
ROBT. B. SPICER, Wharton, N. J.

Our golden Italian queens produce the brightest and gentlest golden bees that we ever had; great honey-gatherers, and not bad robbers. Our three-band are the best of their kind. Price of either, untested, \$1.00; tested, \$2.00; breeders, \$3.00. We will make a very low price later in the season.
C. W. PHELPS & SON, Dealers in beekeepers' supplies, Binghamton, N. Y.

POULTRY

Pure-bred S. C. B. Orpingtons; 2-lb. cockerels, \$1.00 each. HARRY SELDERS, Rt. 1, Oakland, Md.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock.
PIPER'S POULTRY PLANT, Elkville, Ill.

Strictly fresh eggs, direct from our own poultry-yards, in both white and brown color. Also laying pullets. Illustrated catalog free. Write to
TAYLOR'S POULTRY YARDS, (Sales Department.) Lyons, N. Y.

Real bargains. In stock, 2-lb. pullets, chicks, eggs; heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns, Pekin ducks—the kind we all want. No strikers during winter. Catalog free.
CRYSTAL SPRING FARMS, Rt. 3, Lititz, Pa.

INDIAN RUNNER DUCKS

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

Indian Runner ducks, true fawn and white. Eggs and stock for sale. Crystal White Orpingtons (Kellerstrass); beautiful white large birds; mature early. Stock and eggs for sale. S. C. R. I. Reds (Tomkins strain). S. C. Black Minorcas (Northup strain). These are the largest Minorcas in the world. Write for prices on the above breeds and eggs.

C. O. Yost, Rt. 4, Winchester, Ind.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited.

ROBT BIRD, Pinckneyville, Ill.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Special Notices

By Our Business Manager

Our Philadelphia manager, Mr. Wm. A. Selser, expects to continue lectures on beekeeping again this year on our roof at 10 Vine Street, Philadelphia, Pa., during May and June, every Tuesday and Friday, between 11 and 12 o'clock. Visitors desiring to see the actual work with the bees, and the various manipulations of the hives, will be welcome at these demonstrations. Of course, visitors are welcome at our store during all business hours, but for lectures and demonstration work are invited particularly at the hours named.

SECOND-HAND CANS.

Our stock of second-hand cans at Medina has been oversold, and at this writing we have only a few boxes available for orders at Chicago, Ill. Until further notice our price on such as we may have to furnish will be \$3.50 for 10 boxes; 25 or more at 30 cts. per box.

SILVERHULL BUCKWHEAT.

The time for sowing buckwheat is near at hand. If you are in need of choice seed we are prepared to furnish it, while present stock lasts, at the following prices, bags included: Peck, 40 cts.; $\frac{1}{2}$ bushel, 75 cts.; 1 bushel, \$1.40; 2 bushels, \$2.50;

10 bushels, \$12.00. We do not have the Japanese in stock, but can get it to furnish at 20 cts. per bushel extra. If any of our readers have a surplus of seed to dispose of we should be pleased to hear from them with a sample, naming quantity and the price asked. We may be in a position to use some of it on orders which we may get and can not supply from here. At present we have a good stock of silverhull; but in the shipping season it sometimes goes very suddenly; and at such times it is an advantage to know where further stock is available.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, $2\frac{1}{4}$ x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0129, 2x10 round cell medium-brood mill, in style frame, in good condition. Price \$14.00.

No. 0139, $2\frac{1}{2}$ x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{2}$ x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0151, $2\frac{1}{2}$ x6 hexagonal cell extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, $2\frac{1}{2}$ x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, $2\frac{1}{2}$ x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price \$14.00 each.

No. 0156, $2\frac{1}{2}$ x6 extra thin-super mill, fair. Price \$10.00.

No. 0157, $2\frac{1}{2}$ x6 thin-super mill, in good condition. Price \$12.00.

No. 0160, $2\frac{1}{2}$ x6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0164, $2\frac{1}{2}$ x6 hexagonal thin-super mill in fair condition. Price \$10.00.

No. 0165, $2\frac{1}{2}$ x6 hexagonal extra-thin super mill in fair condition. Price \$11.00.

No. 0166, $2\frac{1}{2}$ x6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, $2\frac{1}{2}$ x6 hexagonal extra-thin super mill in fair condition. Price \$11.00.

No. 0168, $2\frac{1}{2}$ x6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0169, $2\frac{1}{2}$ x6 hexagonal extra-thin super mill in extra good condition. Price \$15.00.

No. 0147, $2\frac{1}{2}$ x6 thin-super mill in extra good condition. Price \$15.00.

No. 0175, $2\frac{1}{2}$ x10 light-brood mill in good condition. Price \$16.00.

No. 0176, $2\frac{1}{2}$ x6 extra thin-super mill in fair condition. Price \$12.00.

NEW BOOKLET OF HONEY RECIPES.

Booklet No. 31 of our Beekeepers' Ten-cent Library, entitled "The Use of Honey in Cooking," is a collection of about 100 tested recipes for making cakes, cookies, breads, etc., in which honey is used. In many ways this is the most complete and interesting honey-recipe book which has ever been prepared for wide distribution. The receipts were collected from beekeepers and good cooks everywhere, and carefully tested under our personal supervision during the past year. Only those that have given entirely satisfactory results are included in this collection.

By way of illustration, "The Use of Honey in Cooking" has as a front cover a reproduction of a capped comb; and on the five following right-hand pages, opposite descriptive reading-matter, these illustrations appear in order: "The same comb that we show on cover with the cappings shaved off with a sharp knife, exposing the dripping honey in the cells;" "The uncapped combs being lowered into a honey-extractor;" "Honey-extractor in operation, showing how the combs are whirled rapidly and the honey thrown out of the cells by centrifugal force against the inside of the can;" "Drawing off the honey through the gate at the bottom of the extractor;" "The comb after being taken from the extractor, showing the cells are undisturbed and the comb as good as new, and ready to be filled again

by the bees." Thus it will be seen that the complete process of the making of extracted honey is pictorially explained. This is a result which has long been sought, to correct the popular impression as to the manufacture of extracted honey by some artificial process.

Under the heading of "Food Value of Honey" an introductory of seven or eight pages appears, with a discussion of the subjects, "What is Honey?" "Different Flavors of Honey," "Why Use Honey in Cooking," "Where to Keep Honey" "Honey recipes," "Caution Regarding the Use of Honey in Cooking."

The recipes are set in ten-point type of plan and readable face, and the booklet is printed on paper of very fine quality, with paper cover. There are 64 pages in all. While there will be a great demand for single copies of this booklet from our readers and friends throughout the world at the price of 10 cents per copy, we anticipate a still larger demand from beekeepers, who will appreciate the advantage of using advertising matter of this high class in their honey-selling campaigns. We have priced copies of "The Use of Honey in Cooking" in considerable quantities, and the back cover page has been left blank so that the advertisement of the local dealer or honey-distributor may be placed thereon. It is our desire to offer these booklets for sale in quantities, as desired, at the following prices, which include the printing of an advertisement or price list, with name and address upon the back cover. No other address will be given in your booklet.

100 copies of "The Use of Honey in Cooking," printed with your advertisement.	\$ 4.50
150 ditto,	6.00
200 ditto,	7.75
250 ditto,	9.25
500 ditto,	17.25
1000 ditto,	25.00

Quotations on larger quantities upon request.

Special Notices

A. I. ROOT

TURKEY SECRETS.

The above is the title of one more of the bright little books given to the world by our enterprising friends of the Philadelphia *Farm Journal*. The book tells all about raising turkeys and getting them ready for the market in much the old-fashioned way; and it may be that this is the best way; but I looked over the pages in vain for something about hatching turkeys with incubators, and I could not find it even mentioned. Once more, I have been led to believe, through the various poultry journals, that turkeys can be successfully reared in confinement, or perhaps in moderate confinement. This book has little or nothing to say on this matter. I am well aware that it is their nature to roam over "all creation," for they are (or recently have been) a wild bird. I hope, however, a way will be discovered, if it has not already been done, either through a different breed or otherwise, to grow turkeys in moderate confinement; and, if I am correctly informed, the only way of domesticating the wild turkey (and to a considerable extent its crosses with tame turkeys) is to keep them in a covered yard—that is, one covered with three or four inch poultry-netting. Of course, such covered yards could not very well be large, on account of the expense.

STRAWBERRY SECRETS.

I was somewhat disappointed to find this book is devoted principally to fall-bearing strawberries; but I was pleasantly surprised to discover that with the aid of new varieties and special treatment fall-bearing strawberries are now grown by the acre. Of course, this refers to strawberries here in the North. In Florida all strawberries are fall-bearing, as I have explained. They begin to put them on the market about Thanksgiving day, and this continues all winter and well on till April and May. The surprising part of it is that good strong plants set out in August and September begin to furnish fruit in December, and largely in January. I was a little surprised that the book does not seem to mention strawberry-growing in Florida. Not only are special varieties needed for securing a fall crop, but the

blossoms must be kept clipped off carefully to prevent fruit-bearing in the spring and summer; and it just now occurs to me that my good friend, Jay Palmer, of Traverse City, Mich., has invented a machine something like a pair of scissors with very long handles, and with this simple machine the blossoms or runners can be clipped without stooping down. I think I have also heard mention of an arrangement on the end of a stick, something like a hoe-handle, that is operated by pulling a string. These machines may be in the market for sale; but I do not remember having come across them as yet. The price of these two books is 25 cts. each; but subscribers to that spicy and breezy *Farm Journal* get them free of charge.

WILBUR WRIGHT; WHAT OUR PRESIDENT AND ARMY OFFICERS HAVE TO SAY IN REGARD TO HIS UNTIMELY DEATH.

After Our Homes was in type I came across the following, which I clip from the Bangor (Maine) *Weekly Commercial*:

DESERVES TO STAND WITH FULTON, STEPHENSON, AND BELL.

Washington, May 30.—President Taft, who presented the medals granted by Congress to Wilbur Wright and his brother Orville, and who had frequently seen Mr. Wright fly, Thursday dictated the following statement:

"I am very sorry that the father of the great new science of aeronautics is dead, and that he has not been permitted to live to see the wonderful development that is sure to follow along the primary lines which he laid down. He deserves to stand with Fulton, Stephenson, and Bell."

Secretary Stimson said:

"Besides being probably the foremost exponent of aviation on this side of the Atlantic, Mr. Wright was a citizen of whom America may be proud for his many qualities, his perseverance, modesty, skill, and attention to his profession."

Major General Leonard Wood, chief of staff of the army, said:

"The death of Wilbur Wright removes the foremost figure in aviation in America. The man has done more for the practical development of aviation along safe and well-thought-out lines than any one else; was a citizen of the best type, and the army has lost a man who taught it most of what it knows of aviation."

If I am correct, it is almost without precedent to have the President of the United States take notice or make public mention of the death of a comparatively humble citizen.

The following premiums will be offered at the Oregon State Fair, Salem, Oregon, Sept. 2-9.

Specimen of comb honey, not less than 24 pounds, quality and manner of putting up to be considered.	\$ 5 00	\$3 00
Most attractive display of comb honey.	10 00	5 00
Specimen of extracted honey, not less than 24 pounds, quality and manner of putting up for market to be considered.	5 00	3 00
Most attractive display of extracted honey.	10 00	5 00
Specimen of beeswax, not less than 10 pounds, soft bright yellow wax to be given preference.	4 00	2 00
Most attractive display beeswax.	6 00	3 00
Honey vinegar, not less than one gallon shown in glass.	3 00	2 00
Single-comb nucleus three-banded Italian bees.	5 00	3 00
Single-comb nucleus golden Italian bees.	5 00	3 00
Single-comb nucleus black bees.	5 00	3 00
Single-comb nucleus Carniolan bees.	5 00	3 00
Single-comb nucleus Caucasian bees.	5 00	3 00
The largest, best, most interesting, attractive, and instructive exhibition in this department, all things considered.	\$15 00	

FRANK MEREDITH, Sec., Salem.

The Greatest Success of the Season

By R. E. Olds, Designer

Reo the Fifth, as automobile men know, is the greatest success of the season.

Orders have come to us for 4000 carloads. We have orders in at this writing, from six separate cities, for a trainload to go in one shipment to each.

Nearly one thousand dealers, in one thousand towns, have allied themselves with this car.

I have never known a model to be in such demand as Reo the Fifth is now.

What It Means

This comes as the climax of my career — after 25 years spent in car building.

It comes from men who have faith in me. It comes from thousands of buyers who think the best I can do is the best they can get.

And every one of these men, I am glad to know, is getting more than he expects.

And All Get an Under-Price

I am also glad to know that you who buy now are getting over-value. There

was never a car so under-priced as this.

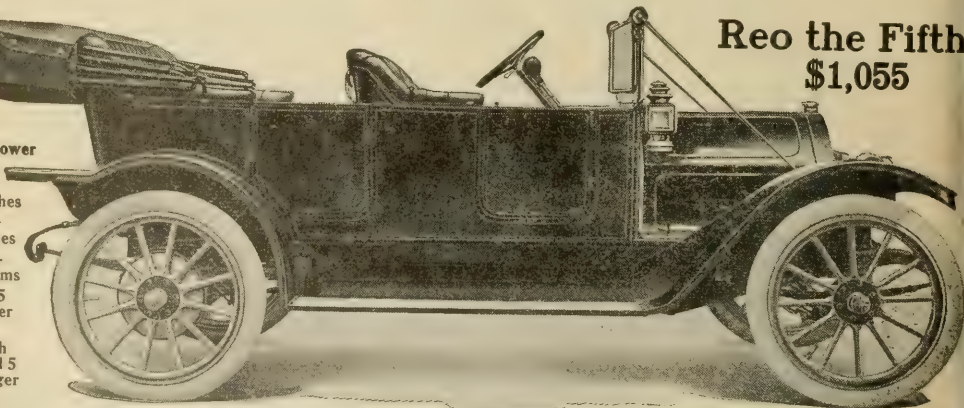
This initial price of \$1,055 is a price that can't continue. It is bound to go higher. It must be advanced with the slightest advance in materials.

But you early buyers are entitled to this under-price. The future of this car will be created by you — by the good words you say about it. That's why we started out this car at this altruistic price.

But I want none to expect that this price will continue. I know it must end before long.

Reo the Fifth
\$1,055

30-35
Horsepower
Wheel
Base—
112 Inches
Wheels—
34 Inches
Demount-
able Rims
Speed—45
Miles per
Hour
Made with
2, 4 and 5
Passenger
Bodies



Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas-tank, and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$20 EXTRA.

Each Car Will Sell Twenty in Time

Reo the Fifth is not built for a season. It is built for a very long pull.

Men will never find a way to greatly improve it. The future can bring none but minor changes.

I say this, remember, after 25 years spent in car building. This car I regard as pretty close to finality.

Now Each Car is a Salesman

The future of Reo the Fifth depends on the cars which go out from our shops this spring.

So no car was ever more carefully guarded. Not a

detail is slighted, despite this rush of demand.

The steel is all analyzed. Parts are ground over and over to get utter exactness.

Every part gets repeated inspections, and the slightest flaw discards it. Every important part must pass radical tests.

The engines are tested for 48 hours. Each finished car is subjected to a strenuous try-out. Hundreds of men are on the alert here against the least imperfection.

The bodies are finished with 17 coats. We give the last touch to every

detail of finish, regardless of cost or time.

For the cars of this Spring are built to build reputation. The future fame of Reo the Fifth depends on their performance.

We expect each car to sell twenty in time. So you who are buying this model now are getting utter perfection—the very best we can do.

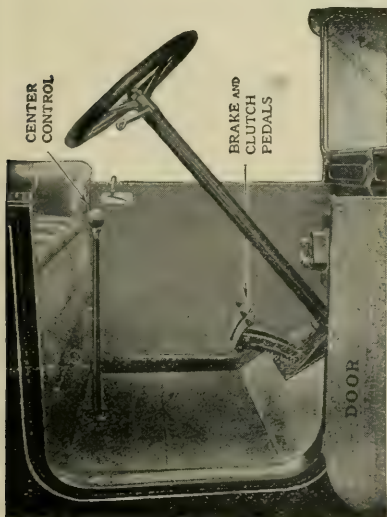
1000 Dealers

There are dealers now in nearly 1000 towns to show Reo the Fifth to the interested.

Write for our book showing the various bodies and we will tell you the nearest dealer. Please write now.

R. M. OWEN & CO, General Sales Agents for REO MOTOR CAR CO., Lansing, Mich.

Canadian Factory, St. Catharines, Ont.



New Center Control All Side Levers Abandoned

One distinguishing feature in Reo the Fifth is this center, cane-handle control.

All the gear shifting is done by moving this lever less than three inches in each of four directions. It is done with the right hand.

Both brakes are operated by foot pedals, one of which also operates the clutch. So

the entrance in front on either side is clear.

This arrangement permits of the left side drive, heretofore possible in electric cars only. The driver sits, as he should sit, close to the cars he passes.

No man will be content with the old-style side levers when he knows this ideal control.

Printype — OLIVER Typewriter

The Only Writing Machine in the World
that Successfully TYPEWRITES PRINT

--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an *ordinary* typewriter—*payable in pennies!*

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of type-written matter *as readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's *printing presses*.

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and *character* into typewritten correspondence. It makes every letter, every numeral, every character, "*as plain as print.*"

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "Printype" sprung resulted from the success of our type experts in equipping a typewriter used in our offices to write "The Oliver Typewriter" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "ebony" trade-mark type, disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "Printype."

The Public's Verdict

That the public is overwhelmingly in favor of Printype is impressively shown by this fact:

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* Printype in preference to the old-style type.

Within a year, at the present rate, 90 per cent of our total sales will be "Printypes."

Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is again to the fore with another revolutionary improvement — *Printype, the type that prints print!*

To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "17-Cents-a-Day" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase.

The masses want The Oliver Typewriter because it stands the test of the largest corporations.

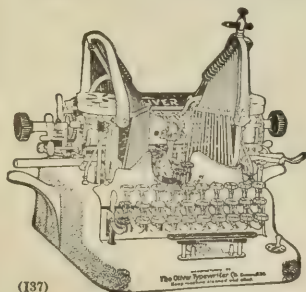
Meet "Printype"—You'll Like Its Looks

Ask for Specimen Letter and "17-Cents-a-Day" Plan.

Make the acquaintance of Printype, the reigning favorite of typewriterdom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "17-Cents-a-Day" Plan on request. Address Sales Department,

The OLIVER Typewriter Company

116 Prospect St., Cleveland, O.



Cleanings in Bee Culture



VOL. XL. JULY 1, 1912. NO. 13.

COMB-HONEY OUTFIT NO. 7.

This outfit is especially adapted to the needs of those who winter indoors or live in a climate where the winters are mild. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

One A B C and X Y Z of Bee Culture (536 pages)	\$1.50
One copy Dovetailed Hive and its Uses (or any other 10c book)	.10
One year's subscription to "Gleanings in Bee Culture"	1.00
(A large illustrated semi-monthly magazine)	
One Junior Root Smoker	.55
One pair cotton bee-gloves (small, medium, or large)	.50
One Alexander Bee-veil	.60
One full colony Italian bees in 10-frame Dovetailed Hive	12.00
(Complete with 32 section honey-boxes)	
One untested Italian Queen	1.50
Two Dovetailed Hives complete for comb honey, using 4x4 sections	6.90
(Nailed and painted, ready for the bees)	
One Porter bee-escape and board	.35
(for taking honey from the bees)	

SPECIAL OFFER { Delivered, after June 1st, at any express office, north of
Ohio River and east of Mississippi River **for \$25.00**

For delivery to points outside of above free limit, we will make terms on application.

In many cases a return of \$10.00 in honey has been secured the first year from just such an outfit as this; and in addition one swarm and possibly two may be secured, which practically doubles the value of the investment. This is not an uncommon occurrence. On the contrary, scores of men have done as well or better, where the conditions were at all favorable. Read these reports.

Gentlemen:—I must say that the two three-frame nuclei that you sent me last year beat anything here by over one-third. It has given them a pretty good name around here. So much for your stock. No more black bees for me.
Burford, Ont., Canada, Oct. 4, 1909.

W. M. KINSEY.

Gentlemen:—The bees and supplies arrived in perfect condition. So far they have given perfect satisfaction in every way. We opened the bees in the evening at about 4 o'clock, and the next morning bright and early they were hard at work in the orchard. I have worked around the hives at different times to see if the bees would show any signs of resentment, but they seem to be perfectly contented in their new home.
Madison, O., May 14, 1908.

Yours very truly,

W. M. HESS, JR.

Gentlemen:—The three-frame nuclei which I purchased from you on June 25th have paid in cash over 100 per cent on all outlay, and the pleasure derived from looking after them over 200 per cent. They still have about 60 to 65 pounds of honey in the hive.
734 Hayden Ave., Collinwood Sta., Cleveland, O., Oct. 17, 1908.

Yours very truly,

GEO. B. OGLE.

Gentlemen:—Our bee-outfit arrived in fine condition, and we transferred the bees in the yard, with the whole room of forty boys and girls standing around them. The day was cool and many bees dropped to the ground, apparently dead, but the children found if they held them in their hands and breathed on them that they would revive, so it ended by boys and girls having hands full of crawling bees. The bees were gentle as could be and now the children are not afraid of them, and if one gets on the window in the room, a boy will pick it off and put it out.

To say we are pleased is stating it mildly. We are delighted. There are many things we want to know but have Mr. Root's A B C of Bee Culture from the library and can learn by study and observation.

Very truly,

9120 Wade Park Ave., Cleveland, O., Apr. 25, 1910.

MISS LUELLA OBERHOLTZER,
(Teacher Lakewood General School, 8th Grade)

ST. PETER'S LUTHERAN CHURCH, NEW YORK, March 11, 1908.

Dear Sirs:—Enclosed please find my check for renewal of my subscription to GLEANINGS for five years. I greatly appreciate GLEANINGS, not only for the good and plain reading-matter, but also because it furnishes many kinks which otherwise one would be unable to find out. These kinks have enabled me in the last three years to sell from ten colonies on the average over \$100.00 per year. I donate the money to my church for charitable purposes, and the members are eager to buy, because they know my honey is absolutely pure.

Yours very truly,

A. B. MOLDENKE, D. D.

The A. I. Root Company, Medina, Ohio

Enclosed find draft for \$25.00, for which please send me Outfit No. 7, as listed above. I understand that you guarantee safe arrival and prepay all charges, if north of Ohio River and east of Mississippi River.

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Town

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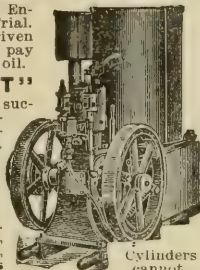
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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are being made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark. Wood to be well cleaned; no section in this grade to weigh less than twelve ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15; amber, 14; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 9. Beeswax, 30.

Boston, June 19.

BLAKE-LEE CO.

INDIANAPOLIS.—No arrivals of new honey at this date. Best extracted honey sells at 11 to 12 in five-gallon cans. Several cars of comb honey arrived here during March, and much remains unsold in jobbing houses, and no stable prices can be named on comb honey at this writing. Beeswax is in good demand, and producers are being paid 30 cents per pound.

Indianapolis, June 17.

WALTER S. POWDER.

SAN FRANCISCO.—Comb honey is very slow in arriving, and the demand far exceeds the supply; but we are hoping for some, and the grocers are inquiring for it. Fancy brings 15 cts.; darker grades, less. Water-white extracted sells at 9½; light amber, 8½ to 9; amber, 7½ to 8; darker grades, 5 to 6. Orange-blossom honey is in demand, and finds a ready sale. Beeswax brings 26 to 28 for light, and 22 to 26 for dark, and is in fair demand.

San Francisco, June 15.

J. C. FROHLIGER.

BUFFALO.—There is hardly any thing doing now in honey. Old is about cleaned up, and no new in as yet. Comb honey is in very slow demand, owing to the very high price. No. 1 to fancy white comb brings 18 to 19; No. 2 white comb, 14 to 15; dark comb, 10 to 12. There is some call for extracted, and it sells well if of good quality. White clover or basswood brings 8 to 9; dark, 7 to 7½. Beeswax brings 30 to 32.

Buffalo, June 10.

W. C. TOWNSEND.

ZANESVILLE.—This market is bare of comb honey. While the demand has been abnormally light, indications are that there would be a little brisker movement now if the supply were available. For white comb, grading from No. 1 to fancy, producers should receive 13 to 16 cts. Extracted is moving very slowly, the principal demand being for small glass packages. At present we offer for beeswax 28 cts. cash, or 30 in exchange for supplies.

Zanesville, June 18.

E. W. PEIRCE.

PERFECTION IN WAX RENDERING

has been reached by our process. Ship us your OLD COMB AND CAPPINGS, and secure highest returns. . . . Write for prices and full information.

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We buy honey too, and you will find us ready to give you a good price for your crop, and we can assure you of fair treatment.

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2146 Central Ave., Cincinnati, Ohio

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(Organized 1870)

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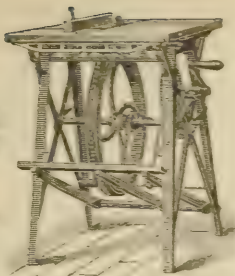
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Medina, Ohio

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We are now ready to fill all orders promptly for our Three-banded and Golden Italian queens. Our queens are bred strictly for honey-gathering qualities. Untested, each, \$1.00, or six for \$5.00, or \$9.00 a dozen. Tested, \$1.25 each, or six for \$6.50, or \$12.00 per dozen. Select tested, \$1.50 each. Breeders, the very best, \$3.00 each. Write for special prices on lots of 50 to 100 queens. Will replace all dead queens that are dead on arrival, and returned in the cage we mailed them in. 25 years a queen-breeder. Send all orders to

J. W. TAYLOR & SON, BEEVILLE, BEE CO., TEXAS



**THE
SWARTHMORE APIARIES**
are now booking orders
for early delivery

**PEDIGREED
Golden Queens**

Swarthmore, Pennsylvania
State Apiary Inspector



SUPERIOR LINE BRED. . . CARNIOLAN QUEENS

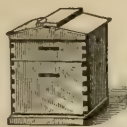
Carniolans are decidedly superior to any other race of bees as buckwheat workers. With us they will make from 50 to 150 per cent more surplus from buckwheat than any others. *Now is the time to request to get Carniolans as buckwheat workers.* Prices: Select untested, \$1.00 each; \$9.00 per dozen; select tested, \$1.50 each; \$12.00 per dozen; breeders, \$6.00. Ask for our paper, "Superiority of the Carniolan Bee." *It's free.*

ALBERT G. HANN, **Pittstown, New Jersey**
Scientific Queen Breeder

LEWIS BEEWARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.



BEES KILLED ?

Now's the time to improve your strains. Put in pure Italian bees. They are harder workers; less inclined to sting, and easier to handle. Get—

Blanke's Bee Book

It gives descriptions of our fine line of bees and bee supplies. Also contains much information useful to bee-raisers and beginners. A book you should keep around. It is **FREE**.

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

PLENTY OF QUEENS READY TO MAIL NOW

At the following prices: Untested, 90c each; 12 for \$9.00; \$65.00 for 100. Tested, \$1.00; 12 for \$10.00; \$75.00 for 100. I have some fine breeders for \$5.00 each.

B. M. CARAWAY, MATHIS, TEXAS

GOLDEN ITALIAN QUEENS

75 cts. each; six for \$4.50; twelve for \$8.00. Untested, warranted, good for black brood.

J. B. CASE, PORT ORANGE, FLA.

W. H. Laws

is now mailing queens every day except Sunday. These queens are going to almost every State in the Union. A statement in public print says, "The postoffice at Beeville has probably cancelled more stamps on queen-cages than any other postoffice in the world." Whether this is true or not, it is true that Laws' queens are giving eminent satisfaction, and old customers are continually renewing their orders.

I am breeding but the one strain of three-banded Red-clover Stock Italians. A square deal and good queens are all that I can promise. I shall be pleased to have your order, which will be filled in rotation; however, I can also take care of rush orders.

Prices: Single queen, \$1.00; six for \$5.00; 100, \$75.00.

ADDRESS PLAINLY

W. H. LAWS, BEEVILLE, TEXAS

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.

Providence, R. I.

THE IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Ljubljana, Carniola (Krain), Austria

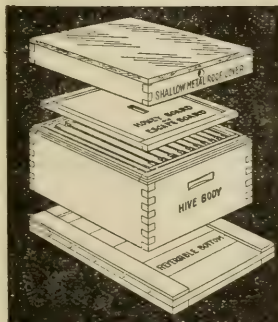
Exports only pure Carniolan Alpine bees. Write for booklet and price list.

ITALIAN AND CARNIOLAN QUEENS!

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, \$1.00. Natural R. C. Golden from imported stock, select untested, \$1.10; tested, \$1.50. Leaflets, "How to Introduce Queens," 15c; "Increase," 15c; or both for 25c.

E. E. MOTT, Glenwood, Mich.

Protection Hive



The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply made of $\frac{1}{2}$ material as are some other hives on the market. Send for circular showing 12 large illustrations. It will pay to investigate.

A. G. WOODMAN CO., Grand Rapids, Mich.

Bingham Smokers

**BINGHAM
SELF CLEANING
BEE SMOKER**



Insist on "Old Reliable" Bingham Smokers, for sale by all dealers in bee-keepers' supplies. For over 30 years the standard in all countries. The smoker with a valve in the bellows, direct draft, bent cap, inverted bellows, and soot-burning device.

Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, $\frac{3}{4}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

RUSH ORDERS

For the benefit of readers who do not have my catalog at hand I wish to submit prices on articles that are in urgent demand at present. Any of these goods can be forwarded the same day order reaches me, and my catalog will be included with the goods.

Beeway. Sections:	100		A grade, \$.80; B grade, \$.70
"	250		" 1.60 " 1.40
"	500		" 2.75 " 2.50
"	1000		" 5.50 " 5.00
"	2000		" 10.50 " 9.50

Plain sections. 25 cents less per 1000.

Thin super foundation: 1 lb., 66c; 5 lbs., 64c; 10 lbs., 62c.

Medium brood foundation: 1 lb., 59c; 5 lbs., 57c; 10 lbs., 55c.

Foundation can be mailed, when urgent, at 25c per pound extra.

Hoffman brood-frames: 10 for 35c, or \$3.00 per 100.

Standard Root smoker: 85c, or by mail for 28c extra.

No 2 veil, with silk face, 60c.

See my catalog for other necessary articles required in the bee-yard. The list of hives and supers is especially interesting, and distance should not be considered when placing your orders here, when quality and prompt service are considered. Notice what a friend in South America has to say after securing several shipments from this house.

DEAR MR. POWDER:—I am very glad to inform you that the goods have arrived in perfect order, and I beg to express my gratification to you, dear Mr. Pouder, and to The A. I. Root Co. for your and their care in filling my last order. The goods are all o. k., and it is like you.
 Sao Paulo, Brazil, South America. D. AMORA VAN EMELEN.

Perhaps the above helps to explain why nearly all bee supplies used by our most successful beekeepers are of the make handled by this house. I buy beeswax, cash or trade. My catalog of bee supplies is free.

WALTER S. POWDER, Indianapolis, Ind.

859 Massachusetts Ave.

New Stock

We already have received a large well-assorted stock of fine supplies for the coming season. We carry no dead or out-of-date stock in our warehouse. You can be sure of getting fresh, clean stock if you order of us.

CATALOGS: Our new catalogs are now ready. Those who have received them say they are the finest bee-supply catalogs ever put out. If you have not already received a copy, send for it.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

"Griggs Saves You Freight."

TOLEDO

FOR ME is the word of every beeman who wants his goods quick.

Big stock of ROOT'S GOODS always on hand. Orders go out same day received.

Can ship Chicken Feed, Swift's Beefscraps, Crystal Grit, Oyster Shells, etc., with your Bee supplies at wholesale prices.

Write us your wants.

**Honey and
Beeswax Wanted**

Catalog Free

S. J. GRIGGS & CO.
25 N. Erie Street

Your Savings

When you deposit your money in a savings account with this bank, you secure not only the benefit of the 4 per cent compound interest paid, but you are also assured of unquestioned safety.

Send us your name and address today for a copy of our booklet explaining the plan many of our depositors have adopted — sending their funds to us by mail from all parts of the country.

**The SAVINGS
DEPOSIT BANK COMPANY
Medina, Ohio**

ASSETS OVER ONE MILLION DOLLARS

A. T. SPITZER, Pres.

E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier

The Bank that Pays 4 per cent

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1912. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it MUST be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay? We are the largest manufacturers of Section-Honey Boxes in the world—naturally we have the finest equipment for section-making, and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make ROOT'S SECTION-HONEY BOXES to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count; and you, Mr. BEEKEEPER, if you will buy ROOT'S SECTIONS, will understand why.

PRICE LIST OF SECTIONS

4¼x4¼ Beeway Sections—2 inch, 1½, 1¾, 1⅞, or 7 to foot wide.

We send 1½ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	\$.80	\$.70	7 lbs.
250	1.60	1.40	18 "
500	2.75	2.50	35 "
1000	5.50	5.00	70 "

Plain or No-beeway Sections—4¼x4¼x1½, 1¾, or 1⅞; 4x5x1½ or 1⅞; or 3⅞x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	\$.80	\$.70	6 lbs
250	1.60	1.40	15 "
500	2.75	2.50	30 "
1000	5.25	4.75	60 "

Price of larger quantities quoted on application.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Chicago Philadelphia New York Des Moines Washington St. Paul
Distributing Agents Everywhere

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

Hamilton, Illinois

THE COAST LINE
TO
MACKINAC



DETROIT, CLEVELAND, BUFFALO, NIAGARA FALLS



TOLEDO, PORT HURON, GODERICH, ALPENA, ST. IGNACE

THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most economical and enjoyable outing in America

WHERE YOU CAN GO

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every other trip.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.

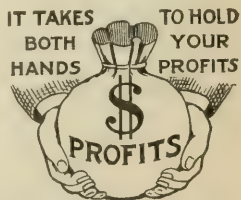
Philip H. McMillan, Pres. A. A. Schantz, Gen'l Mgr.

Detroit & Cleveland Navigation Company

A black and white portrait of a man with dark hair, a mustache, and a goatee. He is wearing a dark suit jacket, a white shirt, and a patterned tie. The portrait is framed by a thin black border.

Shafer Meets You Face to Face

I want you to know

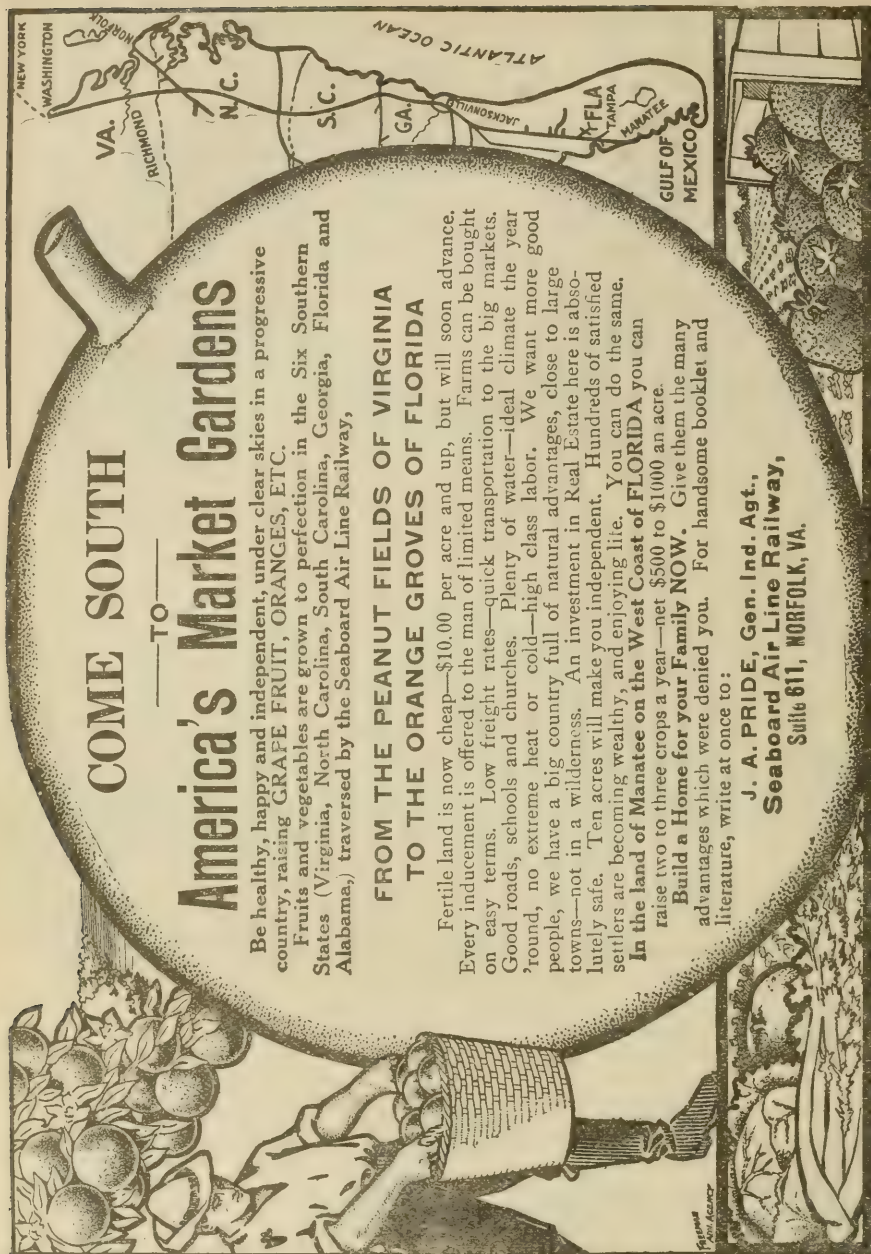


That you are losing big, hard dollars every day that you continue to sell your honey the ordinary way. I put my system before you. It's been tried and tested. It's defeated cheaper competition at every turn. It's created a new way. One sale makes more. Your customers will tell their friends. You will increase your profit on every section and sell four to one because

It's Modern, It's Clean, It's Sanitary, It's Attractive, It's Proven a Success

Send for complete FREE sample and my successful selling plan to

W. S. SHAFER, Dept. G, 2311 N Street, South Omaha, Nebraska



COME SOUTH —TO— America's Market Gardens

Be healthy, happy and independent, under clear skies in a progressive country, raising GRAPE FRUIT, ORANGES, ETC.
Fruits and vegetables are grown to perfection in the Six Southern States (Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama,) traversed by the Seaboard Air Line Railway,

FROM THE PEANUT FIELDS OF VIRGINIA TO THE ORANGE GROVES OF FLORIDA

Fertile land is now cheap—\$10.00 per acre and up, but will soon advance. Every inducement is offered to the man of limited means. Farms can be bought on easy terms. Low freight rates—quick transportation to the big markets. Good roads, schools and churches. Plenty of water—ideal climate the year 'round, no extreme heat or cold—high class labor. We want more good people, we have a big country full of natural advantages, close to large towns—not in a wilderness. An investment in Real Estate here is absolutely safe. Ten acres will make you independent. Hundreds of satisfied settlers are becoming wealthy, and enjoying life.

In the land of Manatee on the West Coast of FLORIDA you can raise two to three crops a year—net \$500 to \$1000 an acre.

Build a Home for your Family NOW. Give them the many advantages which were denied you. For handsome booklet and literature, write at once to:

**J. A. PRIDE, Gen. Ind. Agt.,
Seaboard Air Line Railway,
Suite 611, NORFOLK, VA.**

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

CORN

HARVESTER with Binder Attachment cuts and throws in piles on harvester or winrow. Man and horse cuts and shocks equal with a corn Binder. Sold in every State. Price \$20. W. H. BUXTON of Johnstown, Ohio, writes:

"The Harvester has proven all you claim for it; the Harvester saved me over \$25.00 in labor last year's corn cutting. I cut over 500 shocks; will make 4 bushels corn to a shock." Testimonials and catalog free, showing pictures of harvester. Address

NEW PROCESS MFG. CO., SALINA, KANSAS.

The Famous Triple Motion

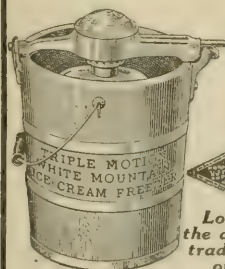


THERE is every reason for home ices, now that every step in ice-cream making has been made simple and easy by the

Triple Motion White Mountain Ice Cream Freezer

The freezer that reduces the freezing time to a minimum—that gives the most velvety texture to ices. The can revolves, while two dashers turn in opposite directions. Increases the bulk of the mixture, makes it lighter, smoother, more delicious.

Make your ices at home and you're sure. Make them with the White Mountain and it's a pleasure.



Let us send you our splendid recipe book, "Frozen Dainties." It will be a revelation to you of what you can do with this freezer at home.



Look for the diamond trade mark on the wrapper

Address

**THE WHITE
MOUNTAIN
FREEZER CO.**

Dept. A0,
Nashua, N. H.

Lexington Hotel

500 Rooms

European Plan

Michigan Boulevard & 22nd St.
Chicago, Ill.



The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

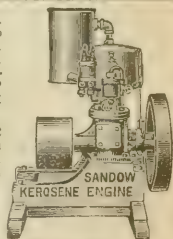
**M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.**

Sandow \$42.50 2 1/2 H. P. Stationary Engine — Complete

Gives ample power for all farm uses. Only three moving parts — no cams, no gears, no valves — can't get out of order. Perfect governor — ideal cooling system. Uses kerosene (coal oil), gasoline, alcohol, distillate or gas. Sold on 15 days' trial. **YOUR MONEY BACK IF YOU ARE NOT SATISFIED.**

A 5 year iron-clad guarantee. Sizes 2 1/2 to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (160)

**Detroit Motor Car Supply Co.,
72 Canton Ave., Detroit, Mich.**



THE BEST LIGHT



makes and burns its own gas. Costs 2c. a week to operate. No dirt, grease nor odor. A pure white light, more brilliant than electricity or acetylene. None other so cheap or effective. Agents wanted. Write for catalogue and prices.

**THE BEST LIGHT CO.
306 E. 5th Street, Canton, O.**

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Buckwheat honey in new 60-lb. cans and 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm. Kendaia, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin packages, any quantity. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Orange honey in 60-lb. cans, 10 cts. per lb., f. o. b. W. E. LITTLE, Rudidoux and Grand Ave., Riverside, Cal.

Choice white-clover honey in new 60-lb. cans at 8 cts. per lb., f. o. b. Waymart, Pa. Sample, 5 cts. J. D. HULL & BRO.

HONEY AND WAX WANTED.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—White extracted well-ripened honey in barrels, or 60-lb. tins. Send sample and price. FOSTER & HOLTERMANN, Ltd., Brantford, Can.

WANTED.—Comb and extracted honey and beeswax. JOHN O. BUSEMAN, 2828 Germantown Ave., Philadelphia, Pa.

WANTED.—Beeswax. Will pay highest cash price on arrival. Drop us a postal. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

INDIAN RUNNER DUCKS

White Indian Runner duck eggs. High fertility guaranteed. Running water. OTTO WESTFELT, Halycon, Cal.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited. ROBERT BIRD, Pinckneyville, Ill.

FOR SALE

FOR SALE.—160-lb. honey kegs at 50 cts. each f. o. b. factory. N. L. STEVENS, Moravia, N. Y.

I will sell 100 or more perfect worker combs in Hoffman standard frames, in lots to suit at 12½ cts. each. EDWIN BEVINS, Leon, Ia.

FOR SALE.—Second-hand and new bee supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new; two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Get more money for your comb honey. Send for complete free sample of selling plan, to W. S. SHAFER, Dept. G, South Omaha, Neb.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Eight-frame double-wall hives per package of five hives at \$10.00 for short time only to reduce overstock of this size.

A. G. WOODMAN CO., Grand Rapids, Mich.

SEED OATS. — Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

"Jinks" foundation fastener will cut and fasten a ¼-inch to a 2-inch in a 1-lb. section. Cuts and fastens at same time. A ¼-inch starter below almost makes sure of straight combs and few culls. Write me. D. S. JENKINS, Las Animas, Colo.

FOR SALE.—New 60-lb. cans, two in a case; lots of 10 cases, 60 cts. each; 25 cases, 59 cts. each; 50 cases, 58 cts. each; 100 cases, 57 cts. each, f. o. b. factory in Ohio or Illinois. Quotations furnished on any thing in cans. Give quantity wanted. Large contract enables us to make low prices.

A. G. WOODMAN CO., Grand Rapids, Mich.

WANTS AND EXCHANGES

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies or honey. ERNEST W. FOX, Clint, Texas.

WANTED.—To buy, before July 15, 10 to 100 1-lb. packages of bees, any kind, with young queens, laying virgin with each package. Drop me a line with price by return mail.

W. W. MARTIN, Lander, Wyo.

REAL ESTATE

Sale, or five-year lease, 160-acre farm, twelve acres cultivated; the rest heavy timber; bees, cows, cannery. Full information on application. ALFRED WALLACE, Mt. Ida, Ark.

BEES AND QUEENS

Choice warranted golden Italians ready, \$1.00.
J. B. CASE, Port Orange, Fla.

Send for price list of my leather-colored Italian queens.
GEO. B. HOWE, Black River, N. Y.

FOR SALE.—A limited number of two-year-old queens at 50 cts. each.
FRANK C. ALEXANDER, Delanson, N. Y.

QUEENS.—Fifty mismated three-banded Italians, ready at 50 cts. each.
LATSHAW HONEY CO., Carlisle, Ind.

Untested Italian queens, prolific and gentle, 75 cents each.
A. P. FELLOWS,
4006 Chestnut St., Philadelphia, Pa.

FOR SALE.—Golden Italian queens. Tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens, nuclei, and full colonies. See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAST, Factoryville, Pa.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for queen, gentleness, and prolificness. One, \$1.30; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

FOR SALE.—100 colonies of bees, free from foul brood; also 50 empty hives, supers, etc.
S. E. TENNANT, Schoharie, N. Y.

FOR SALE.—Italian queens, 75 cts. each. Write for prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Golden untested queens at 80 cents each or \$8.00 per dozen. Safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

Queens from Georgia. Blacks and hybrids. Three for \$1.00. Tested red-clover Italians, \$1.00 each. Safe arrival guaranteed.
JOHN W. CASH, Bogart, Ga.

Queens and half-pound packages. A strain of three-banded Italian honey-gatherers now ready for you. Satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Fine untested Italian queens. Howe strains. Select mated; no other drones in mating distance. 1 for \$1.00; 6 for \$5.00; dozen, \$9.00.
D. G. LITTLE, Hartley, Iowa.

Italian queens, unt., 75 cts.; tested, \$1.25. Cyprians, Carniolans, Banats, Caucasians, \$1.00 to \$1.50; two-fr. nuclei, \$2.00; supplies; honey-packages.
W. C. MORRIS, 74 Cortlandt St., New York City.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

FOR SALE.—Italian queens, bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one frame, \$1.50; two-frame, \$2.00; three-frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular. Virgin queens from my best breeders, 40 cts. each; three for \$1.00.
ROBT. B. SPICER, Wharton, N. J.

Italian queens and bees—Root or Doolittle strains direct. Untested, 80 cts. each; \$7.00 per dozen; tested, \$1.00 to \$1.50. No bee diseases. Prompt shipment. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

FOR SALE.—100 stands of bees in first-class order; supers on full and partly full; 10-frame Dove-tailed hives; Italian and Carniolan crosses; \$6.00 per colony as they stand.
S. A. FULLER, Helena, Ark.

FOR SALE.—150 colonies of bees in good eight-frame hives, well painted, in three apiaries; run for bulk and comb honey; good sweet-clover country. For price and terms apply to
F. A. JAMES, Newbern, Ala.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog. FRANK M. KEITH,
83 1/2 Florence St., Worcester, Mass.

FOR SALE.—Early "Italian" (Frofalcon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens, 50 cts. additional; select tested, \$1.00 extra.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkeley, Cal.

Our strain of Italians is unexcelled for honey-gathering. Your order for queens will be promptly filled. Tested, \$1.00 each. Untested, 75c; \$7.00 per dozen. No disease. Send for price list.
J. W. K. SHAW & CO.

Loreauville, Iberia Par., La.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

Golden Italian queens that are golden to the tip, that will produce golden workers, hardy, and honey-gatherers, that I have worked 15 years to produce, and which will please all who try them. My mating should run up to 90 per cent pure or better. Queens from \$1.00 to \$20.00. Send for booklet.
GEO. M. STEELE, 30 S. 40th St., Philadelphia, Pa.

Our golden Italian queens produce the brightest and gentlest golden bees that we ever had; great honey-gatherers, and not bad robbers. Our three-band are the best of their kind. Price of either, untested, \$1.00; tested, \$2.00; breeders, \$3.00. We will make a very low price later in the season.
C. W. PHELPS & SON,

Dealers in beekeepers' supplies, Binghamton, N. Y.

HELP WANTED

WANTED.—An experienced man, competent to care for 150 colonies; married man preferred.
H. CRAWFORD, Box 4, Gallupville, N. Y.

PIGEONS

PIGEONS, PIGEONS.—Heavy squab-breeding, Car-neaux homers, runts; also a few fancy pigeons; not the cheapest but the best. Write your wants.
WM. E. CHADWICK, Morristown, N. Y.

POULTRY

Pure-bred S. C. B. Orpingtons; 2-lb. cockerels, \$1.00 each. HARRY SELDERS, Rt. 1, Oakland, Md.

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock. PIPER'S POULTRY PLANT, Elkhville, Ill.

Strictly fresh eggs, direct from our own poultry-yards, in both white and brown color. Also laying pullets. Illustrated catalog free. Write to TAYLOR'S POULTRY YARDS, (Sales Department.) Lyons, N. Y.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 79 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business: June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

REPORTS ON OUR BEES.

Dear Sirs:—I received the bees in good order, and they are doing finely. Warwick, O., June 17. GEORGE J. HERTLE.

The A. I. Root Co.:—I should be pleased to have your price on 7½ pounds of bees; also the price on three queens. C. W. DEWRE. Lexington, Ill., June 14, 1912.

The A. I. Root Co.:—I am in receipt of yours of the 11th, and wish to say that I received the bees in good condition, and that they are now working very nicely indeed. G. C. WILBER. Elmore, N. Y., June 17.

The A. I. Root Co.:—I have had those bees you shipped me a week now, and they are doing finely. There were less than 25 bees lost in coming from Medina until they were comfortably at work in the hive. Now they have brood well under way. Montfort, Wis., June 16. J. W. OWENS.

The A. I. Root Co.:—The order shipped to me under date of June 11, 1912, has been received, and I am well pleased with it. I examined the frames this morning, and find the queen has been at work. They have built about a third of a comb in the new frame, which I think extraordinary for only a two-frame nucleus.

ARCHIE B. MILLER.

Rochester, Ind., June 16.

OUR HAND-MOORE STRAIN 3-BAND ITALIANS

Are the best honey-producers. Have spent our winterkeeping money, by buying them with red-clover, our queens are bred strictly for honey-getting qualities. Tested and set for \$3.00 a pair for stock.

LATSHAW HONEY CO., CARLISLE, INDIANA

Home Markets continued from page 2.

KANSAS CITY.—Everybody is anxiously waiting for some new honey, and we believe that the first No. 1 24-section white comb honey will bring \$3.75 per case, while, of course, off grades will bring a little less. For extracted honey there is only a little demand, and it is selling for 7½ to 9, according to quality. O. C. CLEMONS BEE SUPPLY CO. Kansas City, Mo., June 21.

CINCINNATI.—There is very little demand for honey at the present time; nevertheless, for the fancy comb honey we have we are getting \$3.75 a case from the wholesaler, and \$4.00 from the retailer. Light amber honey in large quantities we are selling at 6½ to 7½, and fancy table at from 8½ to 10, according to the quantity and quality purchased. Owing to the great loss of bees, no doubt there will be a fall in the price of beeswax, and only for the choicest wax can we pay 28 to 29, delivered here. Cincinnati, June 19. THE FRED W. MUTH CO.

ST. LOUIS.—We have no change to report in our honey market. No new honey has arrived so far, and we do not expect any before the fore part of next month. The quotations are nominal as follows: Fancy white comb honey, at 16 to 17; No. 1 white, 15 to 16; light amber, 13 to 14; dark, 8 to 11. Broken and leaking honey sells at much less. Extracted light amber California brings 8½ to 9; Southern light amber, 8 to 8½; Southern, in barrels and half-barrels, 7 to 7½ for light amber; dark, 6 to 6½. Beeswax prime brings 29½; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., June 18.

CHICAGO.—The sales of honey, both comb and extracted, have been light during June, but we should have some of the new crop during July. This market, however, does not care for it to any extent prior to August. Prices on comb are from 15 to 18, where it grades from No. 1 to fancy white. The ambers range from 10 to 12, and some of the fancy light ambers 13 to 15. Extracted white, according to kind and quantity, sells from 8 to 9, and the ambers from 7 to 8. Beeswax is steady at from 30 to 32 for the average grade.

Chicago, June 20.

R. A. BURNETT & Co.

NEW YORK.—There is nothing new in comb honey. Small shipments of the new crop are coming in from the South, and are selling at from 13 to 16 cts. according to quality. Arrivals of new crop of extracted honey from the South are now coming in quite freely, as well as from the West Indies. Prices are rather unsettled as yet, ranging all the way from 70 to 90 cts. per gallon, according to quality. Reports from California are rather conflicting, some of them estimating this year's crop at 500 cars, while others claim a very short crop. No offerings have been made as yet that we know of, and no prices established. Beeswax is steady at 30 to 31. New York, June 19. HILDRETH & SEGELKEN.

CHICAGO.—There is nothing specially interesting to report so far as the honey business is concerned. There is practically no demand for comb honey. There are occasional sales made of extracted. We do not look to see comb honey move in any quantities to speak of until about August. We quote No. 1 white Wisconsin clover comb honey, packed in 24-section flat cases, glass fronts, 16 to 17; choice quality and light amber, 14 to 15; medium amber and other inferior grades all the way from 2 to 5 cts. per pound less, depending on quality. Fancy water-white alfalfa extracted honey, packed in 60-pound cans, two cans to the case, 9; choice alfalfa extracted, same as above, but not quite as white, 8½; choice southern Californian, light-amber extracted honey, 8 to 8½. Bright pure beeswax is selling from 30 to 32.

Chicago, June 8.

S. T. FISH & COMPANY.

The summer meeting of the New Jersey Beekeepers' Association will be held at the apiary of Mr. Chas. H. Root, Red Bank, N. J., on Friday, July 12, 1912.

E. G. CARR, Sec.

New Egypt, N. J., June 17.

Special Notices

BY OUR BUSINESS MANAGER

BIENNIAL YELLOW-SWEET CLOVER SEED.

At this writing we are sold out of *Melilotus officinalis*, or biennial yellow-sweet-clover seed, and are very desirous of getting into communication with any of our readers who grow this kind of sweet clover and can arrange to save the seed. We are prepared to contract for several tons of seed of the right kind, either hulled or unhulled. Send us sample of the seed or the blooming clover if not yet ripe.

BUCKWHEAT SEED.

We still have some silverhull buckwheat seed to offer; but at the rate orders have been coming, it will not last long; and so far not one of our readers having a surplus of seed to sell has reported. We can get it of a dealer in Chicago, but the price will be 20 cts. per bushel higher than what we are asking for present stock; \$1.40 per bushel; 2 bushels, \$2.50. If you have any surplus seed, do not fail to let us know at once how much and what you ask for it, and mail a sample.

SIMMONS SWARM CONTROLLER.

We have arranged with Dr. L. A. Simmons, of Florida, to supply his swarm-controlling device, which has been described in these columns. The price of the swarm-controller, nailed up ready for use, is 50c each; \$4.50 for 10. Can be sent by mail for 25 cts. extra for postage. We have not tested the device on our own hives, and can not say from experience how it works, but to those who wish to try it we are ready to supply it as above.

HONEY-BAGS AT BARGAIN PRICE.

We have in stock about two thousand each of one and two pound honey-bags without any printing which we offer at a very low price to close out. The one-pound bag is 5x5, and we will sell the lot for \$3.00 per 1000, or \$5.00 for the lot of a little over 2000. The 2-pound are 5x7½ at \$4.00 per 1000, or \$7.00 for the lot of about 2000.

In our regular honey-bags printed in two colors without name and address we can supply the following sizes at the special prices named while stock lasts:

- 1 lb., 3½x5½, at \$4.75 per 1000.
- 2 lb., 5x7½, at \$6.00 per 1000.
- 3½ lb., 6x9½, at \$8.00 per 1000.
- 10 lb., 10x10½, at \$11.50 per 1000.

We are sold out of the 5-lb. size, and have in stock at this writing 14,000 of 1 lb., 10,000 of 2 lb., 2000 of 3½ lb., and 8000 of 10 lb. Name and address will be added for \$1.00 per 1000 extra for first 1000; 50c for each additional 1000 taken at the same time.

Special Notices

A. I. ROOT

PURITY BOOKS FOR YOUNG PEOPLE, BY PROF. T. W. SHANNON.

In our June 1st issue I gave Professor Shannon's address as Fredericktown, Mo. I am glad that there is now a publishing company at 211 West Walnut St., Louisville, Ky., which issues a fine list of up-to-date books on social purity. For particulars address the T. W. Shannon Publishing Co., as above.

BANKRUPT SALE OF THE PROPERTY OR PROPERTIES OF THE LEWIS PUBLISHING CO., ST. LOUIS.

I have in my hands a good-sized pamphlet of toward 100 pages describing the different "properties" of the Lewis Publishing Co., that are now to be sold at auction. You can get full particulars by writing to J. E. Conant & Co., auctioneers, Lowell, Mass. The pamphlet says on the front cover that this property represents "a tremendous expenditure of money in a very few years." Quite a few of the readers

of GLEANINGS know *considerable* about this "tremendous expenditure," some of them having sent Lewis as much as \$1000, to my knowledge; and yet whenever in our back numbers I have thought best to utter a warning or protest, quite a lot of people accused me of injustice to an honest man. It takes quite a stretch of the imagination to grant that such a man was *ever* honest; and, even if so, he was certainly unworthy of confidence while he was *continually* launching out in this, that, and the other "Tom Fool" speculation. He actually received *millions* of money from hard-working people, and yet his own *National Daily* itself, without any thing else, condemns the man in his operations, almost from its initial number.

HOMESEEKERS' REDUCED ROUND TRIP TO FLORIDA, FROM JUL. 2 TO DEC. 1, INCLUSIVE.

The Seaboard Air Line Railway Co. just gives notice that, commencing July 2, they will make the low round trip from Cincinnati, O., Cairo, Ill., Evansville, Ind., and Louisville, Owensboro, Henderson, Maysville, and Paducah, Ky., to stations in southern Florida, at the low rate of \$25.00. The limit of the trip is 25 days. As there have been so many questions asked in regard to Florida, what it is like in the summer time, etc., the above will give all an opportunity to see for themselves without a great outlay of money.

The dates of sale are as follows: July 2, 16; August 6, 20; September 3, 17; October 1, 15; November 5, 19.

I am planning now to take the trip myself in October. I want to go down and start gardening and some other things before Mrs. Root and I take our final departure after voting, here in November. Perhaps I should explain that the rates are quite a little cheaper for points in the *northern* part of Florida. Full particulars can be had on application to J. A. Pride, Industrial Agent of Seaboard Air Line, Norfolk, Va.

LIME FOR SWEET CLOVER--MORE ABOUT IT; FROM THE DIRECTOR OF OUR OHIO EXPERIMENT STATION.

Our experiments indicate that an application of a ton of burnt lime, or two tons of ground limestone, is entirely sufficient for a first application on this soil, and that subsequent applications may be reduced in quantity, although they should be repeated every four or five years. The object of the larger applications which you saw specified on the stakes was simply to determine whether a better effect would be produced by such applications. We are giving this matter of quantity and frequency of application a more extended test at Strongsville, on a part of the farm that I did not take you to on the day of the meeting there, as it was some distance away, and did not seem at the time to add materially to what I showed you, as it has been running for only a few years, and has not had time to produce its full effect. We are using in that test one ton every three years, two tons every six years, three tons every nine years, etc., in order to determine the best quantity and the best period for application. In handling cheap material like ground limestone it is sometimes more economical to put on a large quantity in one application than to repeat the applications of smaller quantities.

Our Bulletin 159, which I send you, gives the outline of our first experiment, and the results for the first few years. Circular 120, which I also send, contains a report on the later experiments started here. No report has yet been made of the work at Strongsville. I am now engaged in trying to get it into shape for publication.

C. E. THORNE, Director.

Wooster, O., June 24.

THE "EARLY JOE" APPLE.

In one of the last fall magazines A. I. Root spoke of the Early Joe apple, of which he and his family were so fond, and how he could not find any in nursery stock. We have a tree of that name, apples answering that description, which we and all boys, both large and small, in the neighborhood think is the finest and most delicious of all early apples. I never supposed that was the correct name until I read the article.

MRS. LILLIAN CRAWFORD.

Binghamton, N. Y., April 1.

We Buy Honey

If you have a large crop with no local market for the same, let us handle it for you. We buy in any quantity, large or small, and can assure you of satisfactory treatment. Send a good sample, and be sure that you tell us just how your honey is put up, and how much you have. Do not ship any honey to us without instructions, but wait until you have heard from your sample. We will offer a definite price, and give you shipping instructions.

Cans

We still have a good stock of cans, and can make instant shipment of anything in this line. Good cans and shipping cases are an absolute necessity if you would get the best prices for your honey. Even the best honey put up in poor containers will be graded as second class, and honey that in itself isn't the very best will often bring a very fair price if attractively put up.

Write us for information or advice on any beekeeping subject, and your letters will have careful attention.

A full line of Root's supplies always on hand.



TOEPPERWEIN & MAYFIELD

Corner Nolan & Cherry Streets

SAN ANTONIO, TEXAS



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas.

C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever You Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "ROOT" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10,739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.

O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

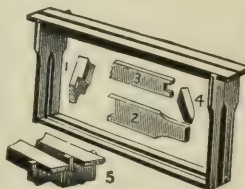
Chicago, 218-231 Institute Place
Des Moines, 555 W. Seventh St.
Syracuse, 1631 Genesee St.

Washington, 1100 Maryland Ave., S-W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



Printype — OLIVER Typewriter

The Only Writing Machine in the World
that Successfully TYPEWRITES PRINT

--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an ordinary typewriter—payable in pennies!

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of typewritten matter *as readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's printing presses.

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and character into typewritten correspondence. It makes every letter, every numeral, every character, "*as plain as print.*"

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "*Printype*" sprung resulted from the success of our type experts in equipping a typewriter used in our offices to write "*The Oliver Typewriter*" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "*ebony*" trade-mark type, disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "*Printype.*"

The Public's Verdict

That the public is overwhelmingly in favor of *Printype* is impressively shown by this fact;

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* *Printype* in preference to the old-style type.

Within a year, at the present rate, *90 per cent of our total sales will be "Printypes."*

Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is *again* to the fore with another revolutionary improvement — *Printype, the type that prints print!*

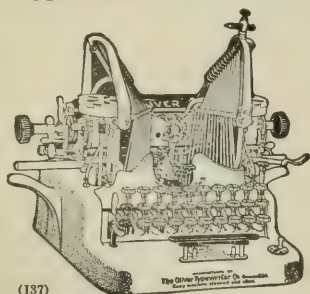
To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "*17-Cents-a-Day*" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase.

The masses want The Oliver Typewriter because it stands the test of the largest corporations.

Meet "Printype"—You'll Like Its Looks

Ask for Specimen Letter and "*17-Cents-a-Day*" Plan.

Make the acquaintance of *Printype*, the reigning favorite of typewriter-dom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "*17-Cents-a-Day*" Plan on request. Address Sales Department,



Massachusetts

JUL 17 1912

Agricultural
College

Gleanings in Bee Culture



VOL. XL. JULY 15, 1912, NO. 14.



ROOT'S BEEKEEPERS SUPPLIES



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Crystal City, Texas. C. W. Cox.

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Whatever Your Wants

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I have just received my goods, order No. 10739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
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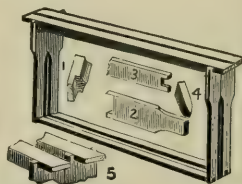
Chicago, 213-231 Institute Place
Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.

Washington, 1100 Maryland Ave., S. W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I Root Company

Executive Offices and Factory
MEDINA, OHIO



RUSH-ORDER PRICE LIST

"FALCON" Beekeepers' Supplies

Bee-way Sections— 250, No. 1, \$1.60 No. 2, \$1.40
 " " 500, " 2.75 " 2.50
 " " 1000, " 5.50 " 5.00
 " " 5000, " 23.75 " 21.25

Plain Sections, 25c per 1000 less.

Dewey Foundation - fastener, each, \$1.25; by mail, \$1.50.

Light Section Foundation, per pound 1 lb., 65c; 5 lbs., 64c; 50 lbs., 59c
Light Brood Foundation, per pound 1 lb., 68c; 5 lbs., 57c; 50 lbs., 52c
Hoffman Brood-frames 10, 35c; 100, \$3.00
No. 14 one-story Dovetailed hive, cover, body, bottom, frames, 8-frame— 1, \$1.50; 5, \$7.00; 10, \$13.50
 10-frame— 1.60 7.50 14.50

Dovetailed Supers complete without sections and starters—

No. 2, 4½x1½ sections) 8-frame: 5, \$2.50; 10, \$4.80
 No. 2B, 4½x1½ sections) 10-frame: 5, 2.75; 10, 5.30
 No. 2F, 4x5 sections

Ideal Bee-veil, 65c; by mail, 75c.

Untested Italian Queens, one, \$1.00; six, \$5.50.

Standard Smoker, 85c; by mail, \$1.10

Tested Queens, one, \$1.50; six, \$8.50

Dealers Everywhere.
Red Catalog, postpaid.

See Last "Gleanings" for List.
"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from



BEES KILLED ?

Now's the time to improve your strains. Put in pure Italian bees. They are harder workers; less inclined to sting, and easier to handle. Get—

Blanke's Bee Book

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The A. I. Root Co., Medina, Ohio

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached, not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark. Wood to be well cleaned; no section in this grade to weigh less than twelve ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—New white comb honey, fancy, brings 18 to 20 cts. per lb.; light amber, 16; fancy white extracted, 10 to 11; light, 9 to 10. Beeswax brings 30.

Boston, July 5.

BLAKE-LEE CO.

DENVER.—The old crop of comb honey is all sold, and we expect the first of the new crop by the middle of July if weather conditions are favorable. We have a good stock of very fine extracted honey which we are quoting in a jobbing way at 9 cts. for strictly white; 8 cts. for light amber; 6¾ to 7½ for strained. We pay 26 cts. in cash and 28 in trade per lb. for clean yellow beeswax delivered in Denver.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
FRANK RAUCHFUSS, Manager.

Denver, June 21.

ZANESVILLE.—The new crop of comb is just beginning to arrive. Indications are that there will be a fair to good crop generally, which should make prices a little lower than for a year or two past. At present producers are being offered 15 to 16 for fancy; 13 to 15 for No. 1. Inferior grades are practically unsalable on this market. Prices to the trade are, of course, arbitrary as yet. There is a little demand for comb, but the market on extracted is very quiet. For beeswax of good quality, producers are receiving 28 cts. in cash, or 30 in exchange for bee supplies.

Zanesville, O., July 4.

E. W. PEIRCE.

CHICAGO.—At this writing, not any of the honey gathered in 1912 is on the market; yet we judge from advices that, before this goes to print, we shall have some—comb as well as extracted. The prospects are that the quality of the honey this season in this vicinity will be superior to any thing we have had of late years. The flow from clover is of excellent quality, and the lindens are promising an abundance at this writing. No. 1 to fancy white comb honey will bring 17 to 18, with a scaling down on the other grades of from 1 to 3 cts. per lb., while the ambers will range from 13 to 15. Extracted white to fancy will bring from 8 to 9; ambers, 7 to 8. Beeswax brings 30 to 32, according to color and cleanliness.

Chicago, Ill., July 2. R. A. BURNETT & Co.

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Gleanings in Bee Culture

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Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

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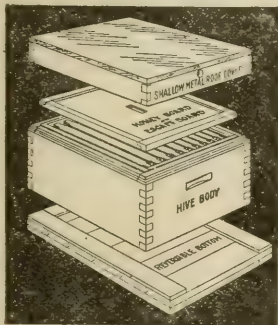
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Smoker engine, 4-inch, each, \$1.25; mail, \$1.50.

Doctor, $\frac{3}{4}$ -inch, each, .85; mail, \$1.10.

Conqueror, 3-inch, each, .75; mail, \$1.00.

Little Wonder, 2-inch, each, .50; mail, .65.

Honey-knife, .70; mail, .80.

Manufactured only by

BINGHAM
SELF-CLEANING
BEE SMOKER



A. G. WOODMAN CO., Grand Rapids, Mich.



"If goods are wanted quick, send to Pouder."

(Twenty-third year.)

BEE-SUPPLIES

Hives, sections, foundation, smokers, veils, extractors, and every thing required in an up-to-date apiary, and superior quality; shipped without delay, and they reach you without that dreadful annoyance of waiting a long time to have your order filled.

These features of promptness and quality have been my hobby for many years; and if you will give this house one trial I shall have no fear about your sending your next order elsewhere.

If you are interested in yellow Italian queens of the gentle strain, and hustlers for honey, I can please you. If you are interested in paper honey-jars or glass jars or tin pails for extracted honey I should like to figure with you. My glass jars do not drip or become soiled with honey, and my paper honey-jars are cheap enough to give away with the honey.

Veedersburg, Ind., June 8, 1912.

WALTER S. POWDER.

Dear Sir:—I wish to thank you for your prompt shipment of goods ordered the other day. They were brought to my house before I thought you had time to make up the order, and you well deserve your motto, "If goods are wanted quick, send to Pouder." I inclose another order which I will be glad to have you send as quickly.

Yours truly, JAMES J. LYNCH.

I can use more beeswax, cash or trade, and you will find me prompt with returns.

My catalog free for the asking.

WALTER S. POWDER, Indianapolis, Ind.

359 Massachusetts Ave.

We Buy Honey

If you have a large crop with no local market for the same, let us handle it for you. We buy in any quantity, large or small, and can assure you of satisfactory treatment. Send a good sample, and be sure that you tell us just how your honey is put up, and how much you have. Do not ship any honey to us without instructions, but wait until you have heard from your sample. We will offer a definite price, and give you shipping instructions.

Cans

We still have a good stock of cans, and can make instant shipment of anything in this line. Good cans and shipping cases are an absolute necessity if you would get the best prices for your honey. Even the best honey put up in poor containers will be graded as second class, and honey that in itself isn't the very best will often bring a very fair price if attractively put up.

Write us for information or advice on any beekeeping subject, and your letters will have careful attention.

A full line of Root's supplies always on hand.

TOEPPERWEIN & MAYFIELD

**Corner Nolan & Cherry Streets
SAN ANTONIO, TEXAS**

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1912. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it **MUST** be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay? We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making, and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make **ROOT'S SECTION-HONEY BOXES** to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count; and you, Mr. BEEKEEPER, if you will buy **ROOT'S SECTIONS**, will understand why.

PRICE LIST OF SECTIONS

4¼x4¼ Beeway Sections—2 inch, 1½, 1¾, 1¾, or 7 to foot wide.

We send 1¾ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	\$.80	\$.70	7 lbs.
250	1.60	1.40	18 "
500	2.75	2.50	35 "
1000	5.50	5.00	70 "

Plain or No-beeway Sections—4¼x4¼x1½, 1¾, or 1¾; 4x5x1½ or 1¾; or 3¾x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	\$.80	\$.70	6 lbs
250	1.60	1.40	15 "
500	2.75	2.50	30 "
1000	5.25	4.75	60 "

Price of larger quantities quoted on application.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Chicago Philadelphia New York Des Moines Washington St. Paul
Distributing Agents Everywhere

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION"

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

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CITY OF DETROIT III



**DETROIT,
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Spend your vacation on the Great Lakes, the most
economical and enjoyable outing in America
WHERE YOU CAN GO

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every other trip.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

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Attachment with Corn Harvester cuts and throws in piles on harvester or winnows. Man and horse cuts and shocks equal with a Corn Binder. Sold in every State. Price \$200.00. W. H. BUXTON, of Johnstown, Ohio, writes: "The Harvester has proven all you claim for it. The Harvester saved me over \$25 in labor last year's corn. It cut and shocked 500 shocks; it made 4 bushels corn to a shock." Testimonials and catalog free, showing pictures of harvester. Address **NEW PROCESS MFG. CO., SALINA, KANSAS.**



Wheels that Last

ELECTRIC

Steel. Unbreakable. Nothing to dry apart. No tires to set. **Buy just wheels** and make your old wagon good as new at a low-down labor-saving handy wagon for all work. **Fit guaranteed.** Broad tires, lighter draft, no rutting. Send for free book today.

ELECTRIC WHEEL CO., BOX 23, QUINCY, ILL.

OUR HAND-MOORE STRAIN 3-BAND ITALIANS

Are the best honey-gatherers. They spoil our white-clover honey by mixing it with red-clover. Our queens are bred strictly for honey-gathering qualities. Untested 75c; 12 for \$8 00; 50 for \$25.00.

LATSHAW HONEY CO.

CARLISLE, INDIANA

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Did You Write to Shafer?

SEE AD. IN LAST ISSUE

See the E-Z SEAL



It is Sanitary, It is all Glass!

There are *four* good things about this fruit jar—the easy seal, the glass cap, the green tint and the big mouth. It takes most fruit *whole*.

It is *all glass*—that's another good thing. The "tin age" is past. No tin about this jar—no metal. Even the *cap* is glass—no twisting—nothing to taint the fruit. This season try

E-Z SEAL JARS

You can preserve all kinds of vegetables as well as fruit, and be sure they will "*keep*" in E-Z Seal Jars. Get our Free Book.

This jar is the housewife's *joy*—easy to fill, easy to close, easy to open and easy to clean. It is air-proof and light-proof.

Free Jar—Free Book

Cut out this coupon, take it to your grocer—he will give you one E-Z Seal Jar—FREE. Be sure and write us for FREE Book of Recipes—it tells many things you should know.

In order to secure free jar, present this coupon to your dealer before September 1, 1912, properly filled out.

HAZEL-ATLAS GLASS CO.
Wheeling, W. Va.

This is to certify that I have received one "Atlas" E-Z Seal Jar free of all cost or obligation. This is the first coupon presented by any member of my family.

Name

Address

TO THE DEALER:—Present this to jobber from whom you received E-Z Seal Jars. All coupons must be signed by you and returned before November 1, 1912. DEALER'S CERTIFICATE. This is to certify that I gave one "Atlas" E-Z Seal Jar to the person whose signature appears above.

Dealer's Name

Address



**Hazel-Atlas
Glass Co.**
Wheeling,
W. Va.



Smooth, velvety ices

After you know the goodness of the frozen dainties you can make with this freezer, ices will be your standard dessert. Easier to make than any other dessert, now that the

Triple Motion White Mountain Ice Cream Freezer

has brought science into ice-cream making. Reduces the freezing time, makes the cream smoother and lighter and increases its bulk by the triple beating. The perfect freezing principle—the can revolves while two dashers work in opposite directions.

Send to us for a copy of our recipe book, *Frozen Dainties*. We will send it to you free. Tells you how to prepare scores of plain and fancy ices and creams. Address

**The White
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trade mark
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Lexington Hotel

500 Rooms

European Plan

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The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.

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We maintain a "Banking by Mail Department" in which both small and large deposits are received from people in all parts of the country, affording them the same high degree of safety for their savings, and the same rate of interest as our local patrons receive.

Write to-day for free booklet explaining fully our plan of receiving savings by mail at 4 per cent compound interest.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

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Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

THE "BEST" LIGHT

Lighted instantly. Over 200 styles. Agents wanted. Write for catalog

THE BEST LIGHT CO.,
306 E. 5th St., Canton, O.

Queens--Queens

Warranted three-banded Italian queens, 75 cts. each; \$4.25 per 6; \$8.00 per dozen. If these queens fail to give satisfaction you can have your money back.

L. H. ROBEY

WORTHINGTON, WEST VIRGINIA

QUEENS - - - - QUEENS

Bees by the Pound and Full Colonies

From a superior strain of THREE-BANDED ITALIANS. Hardy, gentle, and they are hustlers. Guaranteed to please you.

Send for my 1912 descriptive catalog.

I have a large stock of modern BEE SUPPLIES always on hand. ROOT'S GOODS at factory schedule of prices packed and delivered to my station. All orders will receive prompt and careful attention.

EARL M. NICHOLS

LYONSVILLE, MASSACHUSETTS

GREATEST CANNING OUTFIT in the WORLD

With our improved invention you can put up 500 cans of fruit and vegetables each day in your home. Used exclusively by Girls' Tomato Clubs, Members U. S. Dept. of Agriculture. Portable and stationary—all sizes; necessary supplies and conveniences—entirely different and better than old-style outfits—price complete, \$12.00. Full instructions.

GUARANTEED STANDARD CANS

With Solder-hemmed Caps, Tipping Solder, Fluxing and Crates:

250 No. 2 Cans....\$3.50 500 No. 2 Cans....\$9.75 250 No. 3 Cans....\$6.50 500 No. 3 Cans....\$11.50

F. O. B. Baltimore or Virginia factories. From Hickory or Savannah factories, 20c per 100 higher. Order direct and save money. Free descriptive literature on request. Good agents wanted.

HOME CANNER MFG. CO., HICKORY, N. C.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality, in new 60-lb. cans, at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality new clover honey in 60-lb. tin cans. C. J. BALBRIDGE, Homestead Farm, Kendaia, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin package, any quantity. DADANT & SONS, Hamilton, Ill.

Raspberry-clover honey blend; also fine clover and pure basswood. Write for prices. Sample, 10 cts. E. L. LANE, Trumansburg, N. Y.

FOR SALE.—Our bees are gathering white and red clover honey, which will be put in new 60-lb. cans, and offered to the trade when fully ripened. Samples for 5 cts. F. B. CAVANAGH, Hebron, Ind.

RASPBERRY HONEY.—Our crop of raspberry honey this year is very fine—the best in quality I ever saw. It was left on the hives until it was all sealed, and thoroughly ripened by the bees. Thick, rich, and delicious. It is put up in new 60-lb. tin cans. Price, \$6.00 per can. Large-sized sample by mail, 10 cts. ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. JOHN O. BUSEMAN, 2828 Germantown Ave., Philadelphia, Pa.

WANTED.—White extracted well-ripened honey in barrels, or 60-lb. tins. Send sample and price. FOSTER & HOLTERMANN, Ltd., Brantford, Ontario, Can.

WANTED.—Carload fancy and No. 1 comb honey, clover, basswood, or choice white honey. FOSTER & HOLTERMANN, Limited, Brantford, Ontario, Canada.

WANTED.—Beeswax. Will pay highest cash price on arrival. Drop us a postal. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

INDIAN RUNNER DUCKS

White Indian Runner duck eggs. High fertility guaranteed. Running water. OTTO WESTFELT, Halycon, Cal.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free. KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS, American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me. C. O. YOST, Rt. 4, Box D, Winchester, Ind.

May and June fertility. Livable ducks are at high tide; 13 pure-white eggs, \$1.00; \$7.00 per 100. When the egg season is over I will sell one pen of exhibition ducks for \$50.00; limited number trios, \$25.00. This color and strain of ducks have had the stamp of approval set upon them by the foremost poultry judges of this country. Satisfaction guaranteed or money refunded. Correspondence invited. ROBERT BIRD, Pinckneyville, Ill.

FOR SALE

A full line of Root's goods, at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—160-lb. honey kegs at 50 cts. each f. o. b. factory. N. L. STEVENS, Moravia, N. Y.

FOR SALE.—Root or Falconer Bee Supplies. Free catalogs. Save freight. G. F. STANTON, Buckingham, Fla.

FOR SALE.—Second-hand and new bee supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—500 cases five-gallon honey-cans. Good condition. Price 25 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Get more money for your comb honey. Send for complete free sample of selling plan, to W. S. SHAFER, Dept. G, South Omaha, Neb.

FOR SALE.—Marsh Metz motorcycle, good as new. Tires scarcely show any wear; \$65.00; also one ¼ H. P. gasoline-engine, brand new, \$21.00. J. FREEMAN, Chillicothe, O.

ALUMINUM HIVE NUMBERS (1½ in. high), 2 cts. each figure; 50 or more, 1½ cts., postpaid, including brass nails. HENRY BENKE, Pleasantville Sta., N. Y.

For sale or exchange for income-bearing property, our entire business, 1500 colonies of bees and fixtures. Reason for selling, poor health. OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Eight-frame double-wall hives per package of five hives at \$10.00 for short time only to reduce overstock of this size. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—At a bargain, a 25-H.P. touring automobile; removable tonneau; cost \$900; will sell for \$375, f. o. b., including top, windshield, tubes, etc., in good condition; no broken parts; talk quick. Abita Springs, La., Box 3377. N. MARANGE.

SEED OATS.—Swedish Washington—heaviest-cropping white oat ever offered; immune from rust; earliest-maturing deep-rooted variety. Write for prices and description. Only a limited quantity on hand. L. H. RANDALL, Medina, O.

"Jinks" foundation fastener will cut and fasten a ¼-inch to a 2-inch in a 1-lb. section. Cuts and fastens at the same time. A ¼-inch starter below almost makes sure of straight combs and few culls. Write me. D. S. JENKINS, Las Animas, Col.

FOR SALE.—New 60-lb. cans, two in a case; lots of 10 cases, 60 cts. each; 25 cases, 59 cts. each; 50 cases, 58 cts. each; 100 cases, 57 cts. each, f. o. b. factory in Ohio or Illinois. Quotations furnished on any thing in cans. Give quantity wanted. Large contract enables us to make low prices. A. G. WOODMAN CO., Grand Rapids, Mich.

WANTS AND EXCHANGES

WANTED.—To exchange Root bee-supplies, either for money or honey. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey. ERNEST W. FOX, Clint, Texas.

WANTED.—Second-hand Barnes or other good make foot-power saw in good condition. W. O. SYDNOR, Charleston, W. Va.

BEES AND QUEENS

Ten colonies of bees and extractor, \$45.
W. N. MILLER, Dodgeville, Wis.

Choice warranted golden Italians ready, \$1.00.
J. B. CASE, Port Orange, Fla.

FOR SALE.—Untested golden Italian queens, 60 cts. each.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Six colonies of bees and outfit.
DR. YORKS, Norwood Park, Ill.

QUEENS.—Fifty mismated three-banded Italians, ready at 50 cts. each.
LATSHAW HONEY CO., Carlisle, Ind.

FOR SALE.—Golden Italian queens. Tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens, nuclei and full colonies. See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAST, Factoryville, Pa.

Front Line Italian queens, well bred and hardy. After June 1, 6 for \$4.50. Satisfaction guaranteed.
J. B. HOLLOPETER, Pentz, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Fine Italian queens—prolific, hardy, gentle. Root strain. Untested, \$1.00 each; 6 for \$5.50.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Fine-bred golden Italian queens; winter well, and hustlers; untested, 90 cents; tested, \$1.50.
WILL H. CARL, Elysburg, Pa.

FOR SALE.—Golden untested queens, 75 cts. each, or \$7.25 per dozen; safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—60 colonies of bees in fine alfalfa location; all accessories for the production of extracted honey.
D. W. SIMMONS, Fallon, Nev.

FOR SALE.—Italian queens, 75 cts. each. Write for prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

QUEENS.—Improved strain of Italians. Untested, 75 cts.; tested, \$1.00; select tested, \$1.50. Sure to please. Prompt attention to orders.
GEO. H. REA, Reynoldsville, Pa.

Northern-bred Wisconsin Italian queens; extra hardy; gentle and prolific. Untested, \$1.00; tested, \$1.50; breeders, \$3.00 to \$5.00.
LEWIS FRANCISCO, Mosinee, Wis.

Hardy northern-grown queens of Moore's strain of Italians, ready for prompt shipment. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. Write for lots of 50 or more.
P. B. RAMEY, Harmony, Minn.

Queens from Georgia. Blacks and hybrids. Three for \$1.00. Tested red-clover Italians, \$1.00 each. Safe arrival guaranteed.
JOHN W. CASH, Bogart, Ga.

Italian queens from improved stock. Our queens are the product of 25 years' experience, and we will guarantee entire satisfaction. Untested queens, each, \$1.00; ½ doz., \$5.00; tested, each, \$1.50.
FRED LEININGER & SON, Delphos, Ohio.

Italian queens and bees—Root or Doolittle strains direct. Untested, 80 cts. each; \$7.00 per dozen; tested, \$1.00 to \$1.50. No bee diseases. Prompt shipment. Catalog. F. M. BABCOCK, Fredonia, N. Y.

Italian queens, unt., 75 cts.; tested, \$1.25. Cyprians, Carniolans, Banats, Caucasians, \$1.00 to \$1.50; two-fr. nuclei, \$2.00; supplies; honey-packages.
W. C. MORRIS, 74 Cortlandt St., New York City.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog. FRANK M. KEITH, 83½ Florence St., Worcester, Mass.

Fine Italian queens from hardy industrious stock; quiet to handle, good comb-builders, and white capers. Nothing but selected stock used for breeding. Guaranteed free from disease. Untested, 75 cts.; select untested, \$1.00; select tested, \$1.50.
A. J. SEAVEY, Rt. 2, Farmington, Me.

FOR SALE.—Early "Italian" (Profaloon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens, 50 cts. additional; select tested, \$1.00 extra.
JOHN C. FROHLIGER, 257, 259 Market St., San Francisco, Cal. Berkeley, Cal.

Our strain of Italians is unexcelled for honey-gathering. Your order for queens will be promptly filled. Tested, \$1.00 each. Untested, 75 cts.; \$7.00 per dozen. No disease. Send for price list.
J. W. K. SHAW & Co. Loreauville, Iberia Par., La.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Golden Italian queens that are golden to the tip, that will produce golden workers, hardy, and honey-gatherers, that I have worked 15 years to produce, and which will please all who try them. My mating should run up to 90 per cent pure or better. Queens from \$1.00 to \$20.00. Send for booklet. No orders booked by return mail until August 1.
GEO. M. STEELE, 30 S. 40th St., Philadelphia, Pa.

QUEENS AND ½-lb. packages. A strain of three-banded Italian honey-gatherers now ready for you. None better, none cheaper. Untested Italian queens, 50 cts. each; half-pound of bees with untested queen, \$1.75. Safe arrival and satisfaction guaranteed.
W. D. ACHORD, Fitzpatrick, Ala.

D. S. Jenkins writes: "I got more bees in half-pound package from you than out of one-pound packages from others, and your queens would be laying next morning after released; and the other fellow's queens it would take some of them four days to commence. You have treated me right."

Curd Walker's strain of red-clover Italian bees have come to the front to stay; very gentle, great honey-gatherers. Prices, untested queens, \$1.00; 6 for \$5.00; tested, \$1.50 each; breeders, \$5.00 to \$10.00 each.
CURD WALKER, Queen-breeder, Rt 1, Bpx 18, Jellico, Tenn.

Our golden Italian queens produce the brightest and gentlest golden bees that we ever had; great honey-gatherers, and not bad robbers. Our three-band are the best of their kind. Price of either, untested, \$1.00; tested, \$2.00; breeders, \$3.00. We will make a very low price later in the season.

C. W. PHELPS & SON,
Dealers in beekeepers' supplies, Binghamton, N. Y.

FOR SALE.—Italian queens, bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one frame, \$1.50; two-frame, \$2.00; three-frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular. Virgin queens from my best breeders, 40 cts. each; three for \$1.00.

ROBT. B. SPICER, Wharton, N. J.

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits; are far better and more prolific than the ones hatched from a natural swarm or supersedure cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us. Untested queens, 75 cts.; dozen, \$8.00.

WALLIN & CORLIS, Brooksville, Ky.

FOR SALE.—North Carolina bred Italian queens, bred up for business; none better for honey-gathering; good recommendations coming in almost every day. I have Root's and Moore's strain, Davis, Quirin's, Laws', and choice imported breeders, to get my fine honey-gathering strain from. I breed all queens in full two-story colonies running over with bees at all times. I don't keep any thing but the red clover and the Golden in my yards. Try them and see for yourself. Untested, 75 cts.; doz., \$7.00; tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; select breeders, \$3.00; extra select, \$5.00.

H. B. MURRAY, Liberty, N. C.

POULTRY

WHITE ORPINGTONS.—Fine healthy young stock for sale. Eggs and baby chicks from prize stock.
PIPER'S POULTRY PLANT, Elkville, Ill.

Strictly fresh eggs, direct from our own poultry-yards, in both white and brown color. Also laying pullets. Illustrated catalog free. Write to

TAYLOR'S POULTRY YARDS,
(Sales Department.) Lyons, N. Y.

PIGEONS

PIGEONS, PIGEONS.—Heavy squab-breeding, Car-neaux homers, runts; also a few fancy pigeons; not the cheapest but the best. Write your wants.

WM. E. CHADWICK, Morristown, N. Y.

REAL ESTATE

Sale, or five-year lease, 160-acre farm, twelve acres cultivated; the rest heavy timber; bees, cows, cannery. Full information on application.

ALFRED WALLACE, Mt. Ida, Ark.

HELP WANTED

WANTED.—Experienced apiarist on isolated ranch; beautiful country, in Santa Barbara County, Cal. Salary or shares. Box 132, Santa Barbara.

MRS. H. SEDEBOTHAM.

WANTED.—Assistant beekeeper immediately; give age, experience, and wages for balance of season, probably three months.

THE ROCKY MOUNTAIN BEE Co., Forsyth, Mont.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Honey Reports continued from page 2.

INDIANAPOLIS.—No arrivals of new honey at this date. Best extracted honey sells at 11 to 12 in five-gallon cans. Several cars of comb honey arrived here during March, and much remains unsold in jobbing houses, and no stable prices can be named on comb honey at this writing. Beeswax is in good demand, and producers are being paid 30 cents per pound.

WALTER S. POWDER.

Indianapolis, Ind., July 3.

ST. LOUIS.—So far we have not received any shipments of new honey, and the market is entirely bare. There is, however, no demand for it to speak of at the present time, and the quotations are nominal. Shipments of new Southern honey, in barrels, are arriving, and the best light-amber honey is sold at 7½. There is a good demand for it. We quote fancy white comb honey at 16 to 17; No. 1 white at 15 to 16; light amber, 13 to 14; dark, 8 to 11; broken and leaking honey sells at much less. Extracted, none on the market. Southern in barrels, 7½; in five-gallon cans, 8 to 8½. Dark and inferior will bring less. Beeswax is in good demand. Prime brings 30 cents. Inferior and impure less.

St. Louis, July 5. R. HARTMANN PRODUCE Co.

LIVERPOOL.—During the past fortnight we have had a slow demand. At auction yesterday 74 barrels of Chilean honey were offered; and, there being no competition, sellers withdrew the lot with \$7.68 bid for pile X and \$7.20 for pile I. There is a good inquiry for Chilean for direct shipment to the Continent. Lately \$6.22 c. i. f. was bid for 400 barrels; but at the moment sellers can not put through the business. Other descriptions have sold at different quotations: Haitian, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilean, \$5.52 to \$8.16; Jamaican, \$6.22 to \$7.68; Californian, \$9.60 to \$10.92. Californian, retail sales at steady prices. Beeswax is in good demand. Forty sacks of Chilean sold at \$37.18 to \$39.62; 3 cases Peruvian at \$38.38 to \$40.22 per cwt. Other descriptions are quoted as follows: African, \$32.16 to \$34.48; Jamaican, \$37.72; West Indies, \$32.64 to \$33.28.

Liverpool, June 28.

TAYLOR & Co.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

We have about one hundred colonies of very fine bees in Danzenbaker hives at our Philadelphia office, which we offer at \$9.00 per colony plus the price of any grade of queen selected. They will be sent in new hives, and are ready for instant shipment. There is no hive better than the Danzenbaker for the production of fancy comb honey, and this is an exceptional opportunity to get some fine stock at a nominal price.

SPECIAL NOTICES

A. I. ROOT

NOSTRUMS AND QUACKERY.

I hold in my hand a most valuable book bearing the above title. It has over 500 pages and 200 illustrations, and treats in detail pretty nearly all the humbug medicines advertised in our daily papers, and kept on the shelves of many drugstores. Right in the middle of the book a dozen pages are devoted to electropoise, oxydator, oxygenor, oxygenator, and oxytanor, etc. It contains a history of this shameless fraud almost from its beginning, 25 years ago, when it started up. It is indeed a shame and disgrace to our nation and to the present age that this thing has been allowed to go on, robbing sick people by means of a senseless toy or plaything for upward of 25 years. This book tells us that the venders were making so much money out of it that they had various imitators, and really had the cheek to announce a prosecution of those imitators. The courts, however, quickly decided that they could not well take up the case of a counterfeiter when the original was already itself a fraud on humanity. They describe it under the head of what they call "gaspipe therapy," for it is really only a short piece of pipe with a cord or wire attached. Sometimes this gaspipe is entirely empty, and at other times they put in sulphur, sal-ammoniac, or, when it comes handy, just the dust and sweepings from the floor. Of course, *cures* have sometimes resulted from the use of this humbug toy, and I believe the makers themselves admit in their patent claims that it is a device for working on the imagination of their patients, like a horseshoe nailed over the door, etc. Well, now, this book of 500 pages holds up in the limelight of science and good sense a host of cure-alls — cancer cures, consumption cures, asthma cures, "baby-killers" (Mrs. Winslow's soothing syrup), vita-ore, cough medicines that contain opium, headache cures, with accounts of a number of deaths that have resulted from their use; Warner's Safe Cure, catarrh cures, rheumatism cures, and a hundred others.

I suppose that most of you are aware that the pure-food commission has stopped a great number of these so-called remedies. They relate ever so many instances of medicines costing \$1.00 a bottle or more that contain only a few cents' worth of medicine; and a good many times the bottle contained nothing at all as a recognized remedy for the disease it claimed to cure. Our older readers may remember my fight against electric belts, which, like electro-

poise, had no electricity in them at all, and worked simply on the imagination. I am glad to see that electric belts are now pretty much out of date, and to know that the pure-food law of at least one State (Massachusetts) is prohibiting the sale of electropoise in that State. When examined by a chemist he pronounced it "a tube filled with black powder which is a mere mixture of inert substances."

The price of this valuable book is only \$1.00 postpaid, and it would save *many dollars* in most families, especially those that are in the habit of spending their money for *much-advertised* quackery.

Address American Medical Association, 535 Dearborn Ave., Chicago, Ill.

Since the above was dictated I have learned of a lady near by who spent *over \$150* (and finally decided that it was of no benefit) in patronizing one of the so-called "medical institutions" shown up in this book.

MASSACHUSETTS SOCIETY OF BEEKEEPERS.

The annual field-day meeting will be held at Hill Crest Apiaries, home of Mr. Fred C. Howard, Wakefield, Mass., Saturday, August 3, 1912. The following is the program:

11:30 to 12:30. Social hour.

12:30 to 1:30. Basket lunch.

1:30. Meeting called to order by President E. Clinton Britton. Business session; action on new members; unfinished business.

2:15. Professor Burton N. Gates, Inspector of Apiaries of Massachusetts, will speak on "Bees in Massachusetts, Season of 1912."

3:10. A swarm of bees will leave a hive, under President Britton's direction. Musical selections.

Mr. Wilfred Wheeler, of Concord, Mass., Expert Orchardist, will speak on small fruit.

Mrs. Susan E. Howard will transfer a hive of bees from an old box hive into a movable-frame hive.

Vice-president Shaw will show and explain some of his recent inventions.

Accommodations. Trains leave North Station, Boston, for Wakefield at 10:15, 10:55, 11:50, and 12:50 A. M., and return 4:07, 4:43, and 5:14 P. M. Cars leave Sullivan Square, Lower Level, Fellsway Spot Pond car, transfer at Stoneham for Wakefield. Bring basket lunch. Hot coffee donated by society.

All interested in bee culture are cordially invited to attend.

T. J. HAWKINS, Secretary.

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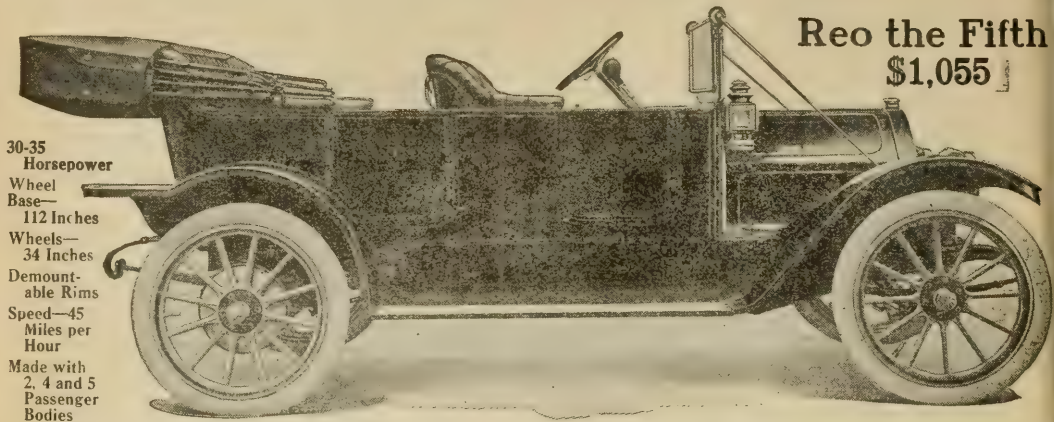
Particular and experienced travelers habitually use the D. & C. Line en route between eastern and western States. Low rates and superior service attracts this class of travel. You can save \$3.00 by purchasing your through tickets via the D. & C. Line. Send two-cent stamp for illustrated pamphlet. Address Detroit & Cleveland Navigation Co., 4 Wayne St., Detroit, Mich.

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Top and windshield not included in price. We equip this car with mohair top side curtains and slip-cover, windshield, gas tank and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$20 EXTRA.

The 1912 Sensation

By R. E. Olds, Designer

Five Times Oversold in May

I have built automobiles for 25 years. Reo the Fifth is my 24th model.

I have watched all the ups and downs of Motordom—all the comings and goings, the successes and failures.

But I never saw a demand like that which developed for Reo the Fifth this year. In April and May we could easily have sold five times our factory output.

My Final Car

Month after month I have told you the story, so you know why this call has come.

I built this car as my final creation, as the cap-sheaf of my career.

In this car I embodied the best I had learned from 25 years of car building.

This car marked my limit. Every detail showed the best I knew.

I analyzed all steel that went into it. I tested the gears in a crushing machine with 50 tons' capacity.

I used Nickel Steel axles—Vanadium Steel connections. I equipped the car with 15 roller bearings.

To every part I gave big margins of safety. The carburetor I doubly heated for low-grade gasoline.

I Watched It

Then I took personal charge of the building, for I pledged my good faith on this car.

I saw that the parts were ground over

and over, until we got utter exactness. I saw that each car got a thousand inspections.

The engines were tested for 48 hours.

Each finished car was tested over and over, until it proved utterly perfect.

We did all this with every car, in the

midst of the April rush. We do it to-day, and shall always do it so long as I build this car.

The Center Control

Then we equipped this car with my new center control. All the gear shifting is done by a small, round lever between the two front seats. It is done by moving this lever only three inches in each of four directions.

I got rid of all side levers, so the front

doors were clear. Both brakes are operated by foot pedals.

In these ways I made possible the left-side drive.

Now nearly all makers announce for next season the center control and the left-side drive. But none can use my center control. They still use the old time levers.

The Amazing Price

Then we offered this car—the best I can build—for \$1,055. And nothing on the market could begin to compete with it.

The car is long, roomy, and powerful. The wheels are big. The body is finished in 17 coats. The upholstering is the height of luxury.

The demand for this car will grow and grow as the facts become better known. I believe that each car will sell twenty.

But the price of \$1,055 can't last long. The price is too low for profit, and materials are advancing. Before very long advancing costs will compel us to ask something more for this car.

1000 Dealers

Reo the Fifth is shown by dealers in a thousand towns. If you will write for our

catalog, showing the various styles of body, we will tell you where to see the car.

Address

R. M. OWEN & CO.

General Sales Agents for REO MOTOR CAR CO.

Lansing, Mich.

Canadian Factory, St. Catharines, Ont.

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The Only Writing Machine in the World
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--17 Cents a Day!

The Printype Oliver Typewriter, which has crowded ten years of typewriter progress into the space of *months*, is now offered to the public for *17 Cents a Day!*

—Offered at the same price as an *ordinary* typewriter—*payable in pennies!*

The commanding importance of *Printype* is everywhere conceded.

For who does not see what it means to make the world's vast volume of typewritten matter as *readable as books or magazines!* The Printype Oliver Typewriter is equipped with beautiful Book Type, such as is used on the world's *printing presses*.

Printype is distinguished by marvelous clearness and beauty. It does away with all strain on eyesight which the old-style *outline* type imposes. Printype puts life and style and *character* into typewritten correspondence. It makes every letter, every numeral, every character, "*as plain as print*."

The complete story of *Printype* has never before been told. Here it is:

The Real Story of Printype

The idea from which "Printype" sprung resulted from the success of our type experts in equipping a typewriter used in our offices to write "The Oliver Typewriter" in our famous trade-mark

type just as the name appears on the outside of the machines and in all Oliver publicity.

The beautiful appearance and the marvelous clearness of the reproduction of our "ebony" trade-mark type disclosed the possibilities of equipping The Oliver Typewriter to *write the entire English language in shaded letters!*

We worked for *years* on the plan and finally succeeded in producing, for exclusive use on The Oliver Typewriter, the wonderful shaded letters and numerals known to the world as "Printype."

The Public's Verdict

That the public is overwhelmingly in favor of Printype is impressively shown by this fact;

Already over 75 per cent of our entire output of Oliver Typewriters are "Printypes."

The public is *demanding* Printype in preference to the old-style type.

Within a year, at the present rate, *90 per cent of our total sales will be "Printypes."*

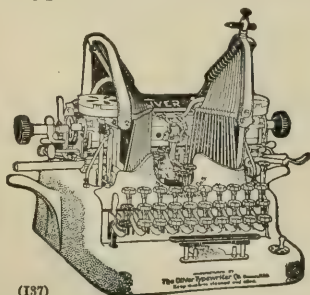
Thus the Oliver Typewriter, which first successfully introduced *visible writing*, is again to the fore with another revolutionary improvement — *Printype the type that prints print!*

To Corporations: The Oliver Typewriter is used extensively by great concerns in all sections of the world. Our "17-Cents-a-Day" Plan is designed to help that large class of typewriter buyers who want the same typewriter that serves the great corporations, but prefer the easy system of purchase. The masses want The Oliver Typewriter because it stands the test of the largest corporations.

Meet "Printype"—You'll Like Its Looks

Ask for Specimen Letter and "17-Cents-a-Day" Plan.

Make the acquaintance of Printype, the reigning favorite of typewriter-dom. Ask for a letter written on The Printype Oliver Typewriter, which will introduce you to this beautiful new type. We will also be pleased to forward the "17-Cents-a-Day" Plan on request. Address Sales Department,



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The Oliver Typewriter Company

116 Prospect St., Cleveland, O.

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Cambridge, Mass.

Gleanings in Bee Culture



VOL. XL AUGUST 1, 1912, NO. 15.



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

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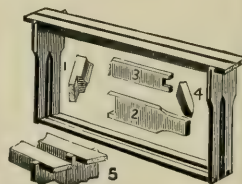
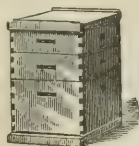
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Plain Sections. 25c per 1000 less.

Dewey Foundation - fastener, each, \$1.25; by mail, \$1.50.

Light Section Foundation, per pound 1 lb., 65c;

Light Brood Foundation, per pound 1 lb., 58c;

Hoffman Brood-frames 5 lbs., 57c; 50 lbs., 52c

No. 14 one-story Dovetailed hive, cover, body, bottom, frames, 8-frame— 1, \$1.50; 5, \$7.00; 10, \$13.50

10-frame— 1.60 7.50 14.50

Dovetailed Supers complete without sections and starters—

No. 2, 4½x1½ sections 8-frame: 5, \$2.50; 10, \$4.80

No. 2B, 4½x1½ sections 10-frame: 5, 2.75; 10, 5.30

No. 2F, 4x5 sections

Ideal Bee-veil, 65c; by mail, 75c.

Untested Italian Queens, one, \$1.00; six, \$5.50.

Standard Smoker, 85c; by mail, \$1.10

Tested Queens, one, \$1.50; six, \$8.50

Dealers Everywhere.

Red Catalog, postpaid.

See Last "Gleanings" for List.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from



GET READY FOR SHIPPING

HONEY-CANS, SHIPPING-CASES, HONEY-JARS, SECTIONS.

SEE THIS BARCAIN: One case of 24 1-lb. Honey-jars, No. 25, porcelain-top; price 9) cents. Order now. At the same time ask for

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showing complete line of bee supplies, with prices. It is more than a catalog. A world of good information in it. **FREE FOR THE ASKING.**

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

Best market price paid for wax.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.

Providence, R. I.

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THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00 \$4.00

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Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . Tells a beginner's experiences in a way to help other beginners.

PRICE \$1.10 POSTPAID.

The A. I. Root Co., Medina, Ohio

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

KANSAS CITY.—New comb honey is arriving on the market, No. 1 white selling at \$3.50 per case of 24 sections; last year's extracted, 7 to 7½ for amber; 8 to 8½ for white. Beeswax at 25 and 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., July 15.

SAN FRANCISCO.—The demand for comb honey is still beyond the supply, and extracted honey has been moving too. Water-white comb brings 15 to 16 cts. per lb.; water-white extracted, 8½ to 9; light amber, 7½ to 8; amber, 6½ to 7; lower grades at 5 to 6. Beeswax is 26 to 30 for nice yellow, and 24 to 26 for the darker grades, f. o. b. San Francisco or Berkeley.

San Francisco, July 16. J. C. FROHLIGER.

CHICAGO.—The yield of 1912 has been coming on the market this month, and the best grades of white comb have been bringing 17 to 18 cts. per lb., and has sold readily. The quality, when we consider flavor, is superior to that of the recent past seasons, and we look for a good trade. Extracted white is bringing 9 to 10, and the ambers 7 to 8. Beeswax market is without change, selling readily at from 30 to 32, according to color and cleanliness.

R. A. BURNETT & CO.

Chicago, Ills., July 17.

NEW YORK.—There is no new crop of New York State or near-by comb honey on the market as yet, and we do not expect to have any before about ten days or two weeks. From reports we have so far received, it is expected that a good fair crop of white clover has been gathered, with probably a crop of basswood to follow, if weather is favorable. There are no prices established as yet, and probably will not be for two weeks to come. Extracted honey is in fair demand, even in spite of the fact that there will be very little or no white sage in California. We think there will be enough white clover and basswood in the East and middle West to offset the shortage of sage in California. No fixed values are established for the new crop of basswood and clover and others; but we think that prices will rule about the same as last year—at least early in the season. Nothing can be said as yet as to the buckwheat crop; but we have learned that quite large fields have been sown; and with favorable weather we see no reason why a good crop should not be produced. Beeswax is quiet at 30 to 31 cts.

New York, July 17. HILDBRETH & SEGELKEN.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . . Write us.

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We buy honey too, and you will find us ready to give you a good price for your crop, and we can assure you of fair treatment.

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C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

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BOSTON.—Fancy and No. 1 white comb brings 17 to 18; white extracted, 10 to 11; light amber, 9 to 10. Beeswax, 30.

Boston, July 20. BLAKE-LEE CO.

SCHENECTADY.—No arrivals of this season's production of comb or extracted honey are on our market as yet, although several producers have written they would soon have some ready to ship. There will be no great demand during August, on account of hot weather and flies, which are attracted by sweets of all sorts.

Schenectady, N. Y., July 12. CHAS. MACCULLOCH.

INDIANAPOLIS.—New extracted honey of finest quality is now moving and selling at 10½ to 12 cts. per lb. in five-gallon cans, according to quantity. New comb honey is not yet moving, and considerable old crop is still on market at sacrifice prices. Beeswax is in good demand, and producers are being paid 30 cts. per lb.

Indianapolis, Ind., July 16. WALTER S. POWDER.

BUFFALO.—There is so little doing in honey that there is hardly any established price. Old comb is all cleaned up. New is just commencing to come, selling slowly at 17 to 18 for No. 1 to fancy white comb; probably will sell slow for a month or two, for honey sells slow in this market during berry season and hot weather. I think prospects are pretty good for considerable honey this season. The quality seems very good.

Buffalo, N. Y., July 19. W. C. TOWNSEND.

CINCINNATI.—There is still some comb honey in the market, but with very little demand. New comb honey has not yet arrived, and the price will be lower than last season, as there is a good crop in general. Water-white extracted in 60-lb. cans is selling at from 9 to 9½ cts., according to quantity; light amber in barrels, from 6½ to 7½; in cans, from 8 to 8½. Beeswax is selling at \$33.00 per 100. The above are selling prices, not what we are paying.

Cincinnati O., July 18. C. H. W. WEBER & Co.

ST. LOUIS.—The situation in the honey market is unchanged since our last, of July 5. There are no receipts of new comb honey. The receipts of extracted honey in barrels are liberal, and for choice light amber 7 cts. is the price established at this time. Dark will bring 6 to 6½ cts. Same grade is quoted at one-half cent higher in five-gallon cans. We omit quotations on comb honey, as none is on the market. Beeswax is in good demand at 30 cts. Inferior and impure, less.

St. Louis, July 12. R. HARTMANN PRODUCE CO.

ZANESVILLE.—Arrivals of new honey are very meager as yet; but more offerings are anticipated from now on, as a fair to good crop seems to be the general report. While wholesale prices are still firm, a decline in price is looked for. At present, producers are offered 15 to 16 for fancy, and 13 to 15 for No. 1 white clover, which are the grades this market most demands. The market on extracted is quiet. For best quality white, producers would receive about 8 cts. For beeswax, 28 cash or 30 in trade is being paid producers. Wholesale quotations, 35 cts. up, according to quality.

Zanesville, O., July 17. E. W. PEIRCE.

CINCINNATI.—At this writing we have received several shipments of new comb honey. However, owing to the heavy crop reported everywhere, also noting that several cities have unsold comb honey from last year, the demand is not up to our expectations by far. For this reason conditions must be looked into, and a range of prices is necessary in order to open up the season and enliven the buyers. The little comb honey that is moving we are selling at 13 to 16 cts. per lb.; and fancy extracted at 8½ to 10, according to the quality a quantity purchased. Amber honey in barrels we are selling at from 6½ to 7½. The above are selling prices. For strictly choice bright-yellow beeswax we are paying 28 cts per lb. in cash, or 30 in trade.

Cincinnati, July 15. THE FRED W. MUTH CO.

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Untested, . . .	\$1.00;	6 for \$5.00
Select untested, 1.25	"	6.00
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The A. I. Root Company
Medina, Ohio

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Cheap enough to give away with honey.
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Tight Seal
Honey-jars**

**Improved
Pattern
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PRICES

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We send 1½ style 2 beeway when your order does not specify style or width wanted.

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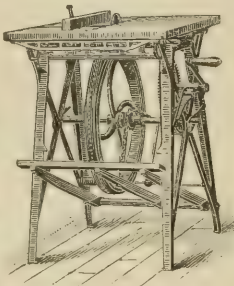
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The latest edition of this work is the most complete of any bee-book that has ever been issued in the English language. While it is still a book for the beginner, it may be read with profit by the advanced bee-keeper. So enormous has been its sale that the publishers have spared neither time nor money to keep this book fully abreast with the times. In the latest edition some scientific and technical matter as well as the practical has been added to its pages. It has been most carefully edited and revised, and the present edition has been gone over page by page by several experts. Its authors and publishers feel that, more than ever, it is a safe and reliable guide to bee-keeping.

In the present edition there is a large number of half-tone reproductions from what might be called moving pictures, showing various steps in the processes for handling bees. While a detailed description goes with the separate views showing each step, yet one can almost learn how to handle bees by simply looking at the series of photographs. Under the head of "Frames, to Manipulate," for example, there are a large number of engravings that show not only the method of handling frames but handling hives and bees in such a way as to do the work with the greatest economy of labor, with few or no stings, and with but little fatigue.

The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.

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The authors have traveled thousands of miles in the United States, with notebook and camera, and have endeavored to incorporate in the pages of this volume all the latest and best practices known to the professional and amateur bee-keepers. There is scarcely a practical method or device known to the bee-keepers of the country that is not here described. Besides the immense amount of valuable material gathered through extensive travel, the work has been enriched with the choicest material that has appeared in the columns of GLEANINGS IN BEE CULTURE, an illustrated semi-monthly by the same authors.

As the title indicates, the book is designed to cover the needs of the amateur and the professional bee-keeper, and all the matter is arranged alphabetically so that the reader may be able to find just the material he seeks without referring to the index, which, however, is very full.

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New crop white-sweet-clover seed, 4 lbs. by mail, prepaid, \$1.12; 50 to 100 lbs., 15c per lb., hulled; unhulled, 3c less. Alfalfa seed, same price. R. L. SNODGRASS, Rt. 4, Augusta, Kan.

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Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
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Fine Italian queens from hardy industrious stock; quiet to handle, good comb-builders, and white cappers. Nothing but selected stock used for breeding. Guaranteed free from disease. Untested, 75 cts.; select untested, \$1.00; select tested, \$1.50.
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CURD WALKER, Queen-breeder,
Rt. 1, Box 18, Jellico, Tenn.

FOR SALE.—Italian queens, bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one frame, \$1.50; two-frame, \$2.00; three-frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular. Virgin queens from my best breeders, 40 cts. each; three for \$1.00.
ROBT. B. SPICER, Wharton, N. J.

QUEENS and 1/2-lb. packages. A strain of three-banded Italian honey-gatherers now ready for you. None better, none cheaper. Untested Italian queens, 50 cts. each; half-pound bees with untested queen, \$1.75. Safe arrival and satisfaction guaranteed.
W. D. ACHOED, Fitzpatrick, Ala.

D. S. Jenkins writes: "I got more bees in half-pound package from you than out of one-pound packages from others, and your queens would be laying next morning after released; and the other fellow's queens it would take some of them four days to commence. You have treated me right."

FOR SALE.—85 colonies of our strain of Italian bees, situated in 8-frame painted hives; Hoffman frames, wired; new combs; \$5.00 per colony at yard, including queens. Bargain.

DOOLITTLE & CLARK, Marietta, N. Y.

For Sale.—800 colonies of Italian bees, more or less, situated in five yards; all in good condition, on this beautiful island of Jamaica, a land of perpetual sunshine; flowers nearly the whole year round; good investment for a practical up-to-date beekeeper to take hold of now. Write for further particulars to

DAVID MARCHALLECK,
Morant Bay, Jamaica.

Golden Italian queens that are golden to the tip, that will produce golden workers, hardy, and honey-gatherers, that I have worked 15 years to produce, and which will please all who try them. My mating should run up to 90 per cent pure or better. Queens from \$1.00 to \$20.00. Send for booklet. No orders booked by return mail before August 1.

I will guarantee to deliver no more queens from this date. I am booked full. Those who have ordered queens will have to wait until I can fill the order or request their money back.

GEO. M. STEELE, 30 S. 40th St., Philadelphia, Pa.

FOR SALE.—North Carolina bred Italian queens, bred up for business; none better for honey-gathering; good recommendations coming in almost every day. I have Root's and Moore's strain, Davis', Quirin's, Laws', and choice imported breeders, to get my fine honey-gathering strain from. I breed all queens in full two-story colonies running over with bees at all times. I don't keep any thing but the red clover and the goldens in my yards. Try them and see for yourself. Untested, 75 cts.; doz., \$7.00; tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; select breeders, \$3.00; extra select, \$5.00.

H. B. MURRAY, Liberty, N. C.

WANTS AND EXCHANGES

WANTED.—To exchange Root bee supplies, either for money or honey. Catalog.

E. W. PEIRCE, Zanesville, Ohio.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.

ERNEST W. FOX, Clint, Texas.

WANTED.—To exchange Langstroth and Heddon hives for White Rocks or shotgun.

F. R. DAVENPORT, Rt. 7, Kalamazoo, Mich.

REAL ESTATE

WANTED.—To rent an apiary of from 200 to 300 colonies for the season of 1913. For particulars address VERN O. DERBY, Bx. 16, Wileyville, W. Va.

Sale, or five-year lease, 160-acre farm, twelve acres cultivated; the rest heavy timber; bees, cows, cannery. Full information on application.

ALFRED WALLACE, Mt. Ada, Ark.

A beekeeper, a Hollander, wants to buy an apiary with healthy Italian stock, after having worked the season of 1913 with the owner on salary or on shares. Correspondence invited.

G. H. VAN DEN BERG, Monsey, N. Y.

FOR SALE.—Bee and chicken ranch; 85 colonies bees, 1 cow, 1 horse, buggy and spring wagon, 400 chickens, and all fixtures to run the business. For rent.—A well improved 5 acres adjoining city limits of Des Moines. MILO SMITH, Berwick, Iowa.

HELP WANTED

WANTED.—Beeman for next three months. State particulars. F. B. CAVANAGH, Hebron, Ind.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

QUEENS.

This is the height of the breeding season with us, and we are prepared now to give exceptionally good service on orders for queens. Quantity orders filled at any time and for any number. All orders filled with the unexcelled Root strain. Queens reared from the best breeding stock, and mated in our own yards, where we carefully control drone production, insuring pure matings of young queens. Untested queens, \$1.00 each; a discount of five per cent in lots of 12 to 25; ten per cent on lots of 25 to 50; \$75.00 for 100. Two hundred for \$140.00. Three hundred for \$180.00. Safe delivery guaranteed in the United States and Canada.

SPECIAL NOTICES

A. I. ROOT

POTATOES AND POTATO GROWING ALL OVER THE WORLD.

I have just been made happy by receiving a great big potato-book of over 500 pages and 100 beautiful half-tone illustrations. It comes from the well-known publishers, Doubleday, Page & Co., of New York. On the first flyleaf I read, "A. I. Root, Esq., compliments of E. H. Grubb and W. A. Guildford." This Mr. Grubb conducted the first potato-instruction train in America, and finally the United States Department of Agriculture authorized Mr. Grubb to visit Europe. Here is what our Secretary of Agriculture says in regard to it:

To whom it may concern:—Mr. Eugene H. Grubb, of Colorado, has made a very thorough and extensive examination into the growing of potatoes in this country and in European countries. He has accumulated much valuable data that ought to be in possession of every farmer in the country. I thoroughly approve of his work, and regret that the law of Congress confines me to the publication of articles of 100 pages, and recommend that he put it upon the market as a private enterprise so that it may be obtained by every potato-grower in the land.

When Mr. Grubb arranged to go to Europe he was authorized by this Department to provide us with data to the extent in which we could use it, and for that purpose was commissioned by the Department. We should be glad now to take as much of his manuscript as would make 100 pages, but all that is valuable can not be crowded into such.

JAMES WILSON, Sec.

While the book describes (sometimes minutely) the particulars for potato-growing in the great potato regions of the earth, it does not go into details as Terry does in our own A B C of Potato Culture. I am pleased to note, however, that its teachings are in the main in perfect harmony with those of T. B. Terry and your humble servant. It is pleasant to note that over in Scotland there are potato-fields of 300 acres, where great crops of potatoes are produced, year after year, without any break or letup; and they have reduced it to such a science that the crop is not only sold on the ground, but in the ground, year after year. The great British commission men in London and other large cities send an agent to purchase the potatoes in the ground. Then they send their own men to do the digging or to superintend the digging, and ship the potatoes just as fast as the market calls for them, and no faster; and the potatoes frequently sell for as much as \$175 per acre, right in the ground.

The way in which they manage to keep up the fertility is by sowing rye grass just as soon as the potatoes are off the ground. As soon as the rye grass is big enough, sheep are turned on, which consume the grass, and they fatten on it, but nothing else. The fat sheep are then sold in the great city markets as fast as they are wanted, and then in addition to the sheep manure left on the ground they put on great quantities of seaweed and stable manure, which is plowed under when the ground begins to freeze. A ton or more per acre of fertilizers is also used. The rye grass makes a tremendous growth in consequence of the heavy fertilizers not being all consumed by the potatoes. You see the rank rye grass grabs and holds the fertilizers left, and furnish humus for the potato growing. Well, for this kind of work, whole potatoes of pretty fair size are planted. The potatoes for seed are dug before they are fully ripe or where the vines have been killed by frost. Such seed is equivalent to "second-crop" seed potatoes used largely in our own country. The use of whole potatoes for seed is, of course, a departure from Terry's one-eye seed potatoes. But Terry grew only mature potatoes for table use. By having only one eye in a place his potatoes are mostly all of table size, and also bring an extra price in the market. I have been for many years aware that, where extra-early potatoes are wanted, whole potatoes are considerably ahead, both here and in Florida. In fact, to get early potatoes before anybody else, we plant great big ones in order that the big potato may not only give the new plant a good sendoff, but it may back it up by its big parent furnishing one of the very best fertilizers from start to finish. Of course, this way of seeding costs, and unless we can get a big price for our extra-early potatoes it will not pay.

POTATOES—380 BUSHELS PER ACRE.

We take the following from a statement made by E. H. Grubb:

"We should easily double or triple our potato production without any increase in acreage. Just consider these figures: In Germany the average production is about 200 bushels of potatoes per acre. In the United States the average production is 86 bushels per acre. With intensive scientific methods of culture on my Carbondale farm I never produce less than 380 bushels per acre, and without the use of commercial fertilizers. This all goes to show you what American soil will do when given a chance."

The above statement in regard to the average production in the United States is certainly humiliating; and I think something like it might be said of the corn crop. Those who have read our A B C of Potato Culture will remember that I myself secured a yield of 375 bushels per acre, and that, too, without a cent's worth of commercial fertilizer. I did it by the use of barnyard manure applied to clover, and then by plowing under the biggest crop of clover I could produce, just before planting potatoes.

Our space will not permit me to tell you of the many good things I should like to mention in this large \$2.00 potato book. If you are growing potatoes by the acre, or contemplating doing so, it will pay you to have the book, even if you already have our recent new edition of the A B C of Potato Culture.

It is pleasant to know that our Department of Agriculture has sufficiently recognized the value of potatoes as food to send a man all over the world to collect valuable information in regard to the production of this great food staple.

Kind Words from Our Customers.

I take occasion herewith to tender Mr. A. I. Root my kind respects. I have often felt inclined to write him a private letter, but I shall not encroach upon his valuable time. I only wished to give expression to my feelings of sympathy with one who, through his most interesting Home talks, is bringing light into many a home, even in far South Africa.

D. S. VAN WARMELO.

Harmony, Pretoria, So. Af., May 23.

WHEN GLEANINGS WAS PRINTED BY THE "WIND-MILL."

I am one of the original GLEANINGS subscribers, when the windmill was the motive power. I was then a resident of Henry Co., Ill. I have no bees at present, but am in the real-estate business, and member of the city council here. I expect to be one of the GLEANINGS family as long as I live. I have always thought highly of A. I. Root and family.

Ontario, Cal., April 22. J. V. CALDWELL.

A KIND WORD FROM ONE OF THE VETERANS ON THE GLEANINGS LIST.

Bro. A. I. Root:—I took GLEANINGS away back when it was very small but always good. If you remember I had a German carp-pond stocked with the first distribution by the Governor, I raise bees, carp and chickens. At one time, away back in the 70's and 80's, you were a young man, and so was I, I am now past 76. I keep bees yet, but not many. I like to read GLEANINGS.

Glenwood, Ind. WILLIAM S. KALER.

DR. MILLER'S RECENT INDISPOSITION AND WHAT HE HAS TO SAY ABOUT IT.

Dear Ernest:—I have always been a believer in divine Providence. Of late my belief has grown stronger and stronger in special providences. I don't believe God takes care of us in job lots, but looks out for each one of us as if each one were the only one in the universe. That doesn't make me feel any more my own importance, but it does make me feel that God is a wonderfully big God that he can give such minute care to so many, many little specks of his creation.

Just now there's a special providence in this Straw business. Never before did I read a number of GLEANINGS without feeling that there were a number of Straws that just *must* be written—this time barely one.

Oh! but it's good to be alive, and to dare to take in a full breath without being in terror lest a cough should rip me in two. I want to thank you for your kind letters, which have done me good.

C. C. MILLER.

FROM 7 TO 18, AND \$85.00 WORTH OF HONEY IN ONE YEAR.

Mr. A. I. Root:—For years I have taken note of you and your enterprises; and because of my confidence in your company's honesty I have bought what I needed in your line of you. I began with three weak colonies of bees last spring (1911); later in the season I took four others from caves. I practiced all known methods, and some not known, to keep down increase. I sold \$85.00 worth of honey, and came out with 18 rousing colonies this spring. I have done this while giving ten hours a day of my time to a railroad company. I consider that good; but I have not time to tell you *how* I did it.

You said one thing in a recent issue of GLEANINGS that I must commend. In substance it was that you were almost persuaded to become a real prohibitionist. What more can we do for any cause than to testify by act and word that we believe in it? By our vote we give a testimony that reaches the uttermost parts of the earth. Of the two leading parties, the average unbiased man can only toss heads or tails to decide which to take. Friend A. I. R., let's shout "God save the king" with our vote, and none will say we are "hired boosters."

M. CLYMER.

Lewis Springs, Ariz., June 8, 1912.

[Friend C., if voting for men who fear God but do not fear the liquor-traffic makes me a prohibitionist, then I am "it."]

HONEY LABELS

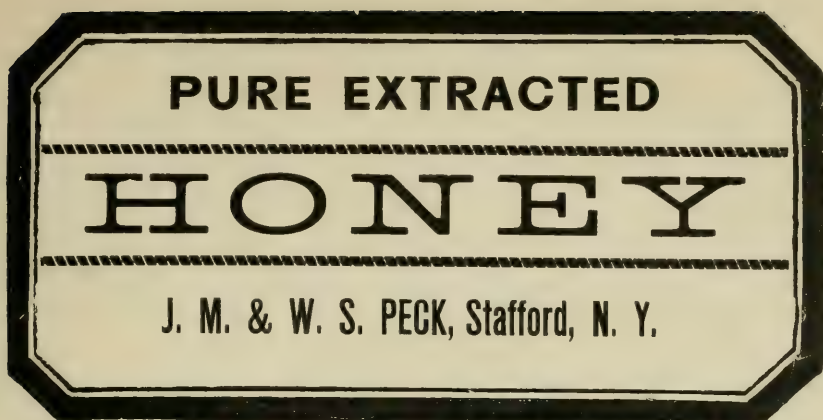
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



No. 89.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.



Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.



No. 94.—Bronze on glazed paper, 250, 90c; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.

No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.

These Remarkable Books Practically

F R E E

We have now completed arrangements by which we offer all readers, in connection with special subscription offers, any of this great series of booklets called

"MONEY-MAKING SECRETS"

POULTRY SECRETS: First published in 1908, this collection of the carefully-guarded secrets of famous poultrymen created a sensation in poultry circles. Every secret is valuable and every one has passed severe tests of its usefulness. 64 pages, illustrated. 15th Edition, 110th thousand.

HORSE SECRETS: Compiled and written by DR. A. S. ALEXANDER, of Wisconsin, the eminent veterinarian. Exposes the swindling methods of "gyps" and crooked dealers. Also many feeding and fattening secrets. Invaluable to horse buyers and owners. 64 pages, illustrated. 9th Edition, 85th thousand.

THE MILLION EGG FARM: Describing the enormous business and last year the amazing total of 1,121,478 eggs. Written 'specially for beginners. 80 pages, profusely illustrated. 4th Edition, 35th thousand.

THE CURTISS POULTRY BOOK: The story of the Curtiss brothers and their great Niagara Farm, built up from nothing to an annual business approximating \$100,000 per year. Ducks, eggs, broilers, and cut clover are their staples. A remarkable story. 56 pages, illustrated. 3rd Edition, 30th thousand.

\$6.41 PER HEN PER YEAR: Telling of the great success of the Cornings, whose methods of production of high-grade sterile eggs for market revolutionized this branch of the poultry business. 64 pages, illustrated. 14th Edition, 150th thousand.

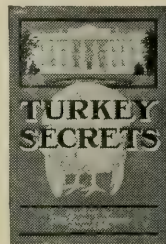
DUCK DOLLARS: There is money in ducks. The Weber brothers market about 40,000 ducklings each year, and make a clear net profit of 50 cents on each one. This new booklet tells exactly how, with valuable advice for beginners as to operation and markets. 88 pages, illustrated.

FALL-BEARING STRAWBERRY SECRETS: The first complete hand-book covering the culture of this wonderful new fruit. Any one who can raise June strawberries can raise the Fall-bearers, but culture is different. Those who started first are reaping the high market profits. 64 pages, illustrated.

TURKEY SECRETS: The way to make turkeys a profitable farm crop, as demonstrated by HORACE VOSÉ of Rhode Island, the veteran turkey raiser who supplies the turkey for the President's Thanksgiving dinner each year. Instructive and enlightening. 64 pages, freely illustrated.

GARDEN GOLD: A new booklet written for people with small gardens, showing how to raise your own vegetables in these days of high prices, and SAVE money. And how to MAKE money by selling your surplus. Splendid for people with back yards only. 64 pages, illustrated.

SHALL I FARM? For city people trying to decide whether or not to go to the country. No golden promises, but a clear, impartial, unbiased, unprejudiced weighing of the subject. All the advantages and disadvantages of all kinds of farming plainly set forth. Nothing like it ever before printed. 64 pages.



So popular are these booklets, and so valuable their contents, that nearly

400,000 COPIES HAVE BEEN SOLD

during the last three years. Each is the very latest word in its own particular field—together they cover new discoveries, secret methods, exposures, new systems, little known information, and astonishing achievements in many lines.

We Offer { Any one of these booklets, postpaid } All three \$1.00
{ (Your Choice), "GLEANINGS," 1 year, } for
{ FARM JOURNAL, till December, 1915 }

\$1.50 to subscribers in Canada, Philadelphia, and foreign countries, on account of extra postage. Extra booklets, 20c. each. Booklet and papers may go to different addresses if necessary, but these

BOOKLETS CANNOT BE OBTAINED SEPARATELY—ONLY IN THIS COMBINATION.

THIS PAPER is well known to you, and requires no description or praise here.

The FARM JOURNAL is the standard farm and home paper—foremost in the world. It has more than 750,000 subscribers. It is up-to-date, clean, boiled-down, honest. It knows what to say, and can stop when it has said it. It is for the poultryman, gardener, horse owner, dairyman, grain grower, fruitman, the farmer, the villager, the suburbanite, the man who lives in the country, and those who would like to, the women folks, the boys and girls. In short, it is for YOU. Cheerful, entertaining, intensely practical, absolutely clean. When the time is up it will stop.

CUT OUT AND SEND THIS COUPON

GLEANINGS IN BEE CULTURE, Medina, Ohio

For the enclosed \$1.00 send me your paper one year, FARM JOURNAL till Dec. 1915, and the booklet

My Name.....

Street..... R. F. D.....

P. O..... State.....

For extra booklets, add 20 cents each.

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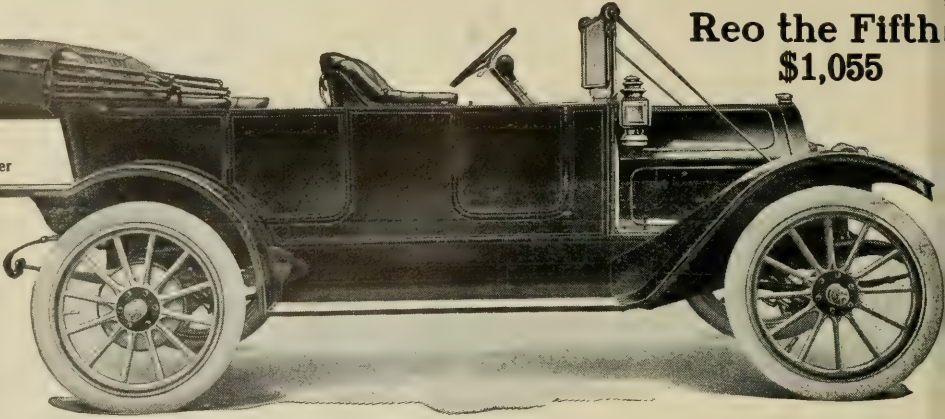
Gleanings in Bee Culture



VOL. XL AUGUST 15, 1912 NO. 16.

Reo the Fifth
\$1,055

30-35
Horsepower
Wheel
Base—
112 Inches
Wheels—
34 Inches
Demount-
able Rims
Speed—45
Miles per
Hour
Made with
2, 4 and 5
Passenger
Bodies



Top and windshield not included in price. We equip this car with mohair top side curtains and slip-cover, windshield, gas tank and speedometer—all for \$100 extra. SELF-STARTER, IF WANTED, \$20 EXTRA.

The Center Control

By R. E. Olds, Designer

Nearly every builder of high-grade cars is designing a center control.

In another year, cars with side levers which block a front door will be so out-of-date as to hardly be salable.

Bear this in mind in selecting a car. The side lever car is now a back number, as every maker knows.

Left Side Drive

In some cars the side levers are merely moved to the center. That idea won't do. Men want to get rid of the reaching. They want the front of the car to be clear.

In Reo the Fifth there is only one lever, and that is placed close to the seat. All the gear shifting is done by moving this lever only three inches in each of four directions.

There are no brake levers, for both the brakes are operated by foot pedals.

This arrangement permits of the left side drive, as in electric cars. The driver sits close to the cars which he passes. He is on the up side of the road. In making any turn which crosses a road he is sitting where he can look back.

That is the greatest reason for the center control—to permit of the left side drive.

R. M. OWEN & CO.

Every car is coming to it as fast as models can be changed. The side levers and the right side drive are going out at once.

This Year's Sensation

Reo the Fifth, with the center control, has been this year's sensation. Our spring output was five times oversold.

In all the 25 years I have spent in this industry, I have never seen such a popular car.

It is this amazing demand which has driven makers to the immediate adoption of center control.

But That Isn't All

There are other reasons beside center control for this car's immense popularity.

It is the final result of my 25 years spent in car building. In every detail it marks the best I know.

The cars are built under my supervision. And I insist on absolute perfection.

The steel is twice analyzed, before and after treating.

The gears are tested in a crushing machine of 50 tons' capacity.

Parts are ground over and over to get utter exactness. The parts in each car pass a thousand inspections.

Engines are put through five severe tests—48 hours in all.

Finished cars are tested over and over.

There are in this car 15 roller bearings. Ball bearings are nowhere used, save in the clutch and fan.

The bodies are finished in 17 coats. The seats are luxurious. The tonneau is roomy.

With a lifetime's reputation at stake on this car, men know I am mighty careful.

Then the Price of \$1,055

And the underprice has been another sensation. We fixed the initial price at \$1,055, which is \$200 below any car in its class.

The price of this car must soon be advanced, because of the advancing materials. It is much too low. But the price remains at \$1,055 while our present materials last.

Reo the Fifth is sold by dealers in a thousand towns. Write for our catalog, showing all styles of bodies, and we will tell you where to see it. Address

General Sales Agents Reo Motor Car Co., Lansing, Mich.

Canadian Factory, St. Catharines, Ont.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey is being sold in the various sections of the country. It is stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN MARKETS FOR COMB HONEY.

NO. 1.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

NO. 2.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

NO. 3.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

NO. 4.—Three-fourths of the total surface must be sealed.

NO. 5.—Must weigh at least half as much as a No. 1.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NO. 6.—Sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the row of cells next to the wood, which may be slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this class to weigh less than 1½ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the row of cells next to the wood, which may be slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this class to weigh less than 1½ ounces.

NO. 2.—Sections to be well filled; combs firmly attached on all sides and evenly capped, except the row of cells next to the wood, which may be slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this class to weigh less than 1½ ounces.

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy white comb honey brings 17 to 18; No. 1 ditto, 16 to 17; fancy white extracted, 10 to 11; light amber, 9 to 10; beeswax, 30.

Boston, Aug. 5.

BLAKE-LEE CO.

INDIANAPOLIS.—Extracted honey of finest quality in five-gallon cans is selling at 10½ to 12, according to quantity. No. 1 and fancy white comb sells for 16 to 17. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Aug. 2.

WALTER S. POWDER.

SCHENECTADY.—Local producers are bringing a few cases of early honey to our market, and disposing of it in a retail way at 16 and 18 cts. The quality seems to be good compared with last season. No shipments worth while are in sight, and there is no special demand.

Schenectady, Aug. 5.

CHAS. MACCULLOCH.

ALBANY.—The honey demand is beginning to open here now, and a few lots of white comb honey have sold on arrival at 16, which is probably a better price than will be had a month later; for, although not a general demand yet, an early market usually pays best prices.

Albany, N. Y., July 25.

H. R. WRIGHT.

CINCINNATI.—Several shipments of new comb honey have arrived, but it is not moving very fast, prices ranging for No. 1 and fancy, according to the quantity bought, from 14 to 16 cts. Extracted white is selling from 9 to 9½; amber in barrels at 7; cans, 8 cts. Beeswax, fair demand at \$33 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, O., Aug. 3.

C. H. W. WEBER & CO.

ZANESVILLE.—The new crop of honey is beginning to arrive; and the demand, which is a little brisker than it has been, is fairly well supplied for the present. For best grades of comb, producers are offered 13 to 16. Wholesale prices are not established, but there is likely to be a little weakening for the time being, on account of small lots brought in and sold direct to retailers. Producers should receive, for best quality extracted, 8 to 8½. For beeswax, 28 cts. cash, 30 in trade, is being offered, first-hand.

Zanesville, O., Aug. 2.

E. W. PEIRCE.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

SPECIAL DELIVERY

We have anticipated the needs of beekeepers for prompt delivery of supplies during the month of July, and have an unusually large stock from which to draw.

The honey-flow is promising larger than most beekeepers were prepared for, but we have sections and foundation on hand ready for instant shipment, so not a single pound of honey need be lost because of insufficient room in which to store it. Sections of all the standard sizes are here in the original packages, and we can put your name on a package of any size just as soon as your order reaches us.

You will find it will pay you, too, to use foundation liberally this season. Starters are good but full sheets are better, and you can very materially increase your honey crop by giving the bees this little assistance.

We buy honey too, and you will find us ready to give you a good price for your crop, and we can assure you of fair treatment.

Whatever your needs in the beekeeping line, we can supply them promptly, and we are glad to answer questions at any time.

C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

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CHICAGO.—The demand has been sufficient to take up the arrivals of comb honey during the past month, and at present there is no surplus nor consignments awaiting sale. The best grades of white comb have been bringing 17 to 18, with amber grades neglected. Extracted white clover and basswood bring 9 to 10. Beeswax is steady at from 31 to 32 if free from sediment. The quality of honey in this valley is excellent.

Chicago, Ill., Aug. 2. R. A. BURNETT & Co.

CINCINNATI.—New comb honey is arriving; and in order to consume the great crop of this section of the country there must be a lower range of prices than last year. We are selling choice comb honey at from 13 to 16 cts., according to the quality and quantity purchased; extracted at 6½ to 7½ for amber, and 8½ to 10 for good to fancy extracted. The above are our selling prices, not what we pay. For choice bright yellow beeswax we are paying 28 cts., delivered here, in cash, or 30 in trade.

THE FRED W. MUTH CO.

Cincinnati, O., Aug. 6.

ST. LOUIS.—The honey market is in the same condition as in ours of July 22. No new comb honey has arrived, and the receipts of extracted honey in barrels are still liberal. There is a good demand for choice light amber, in barrels and half-barrels, at 7 cts. per pound; dark, 6 to 6½. The same grade in five-gallon cans is quotable at one-half to one cent higher, according to the quantity taken. We omit quotations on comb honey, as there is no established price made so far. There are offers from the Pacific coast for choice white comb honey at 15 cts. per pound, delivered here. Beeswax, prime, is in good demand at 29 cts.; inferior and impure, less.

St. Louis, Aug. 5. R. HARTMANN PRODUCE CO.

NEW YORK.—There is no new comb honey on the market as yet to speak of. A few small lots arrived during the past week, and sold at 15 cts. for fancy, 14 for No. 1, and 13 for No. 2. We really do not expect shipments of any size until the latter part of this month or the first part of September. The few little lots which have arrived could hardly be classed as strictly fancy. Such an article no doubt would bring 16 cts., whether any higher price will be obtained is doubtful; but, as said in our last report, there is a large crop in the East, and it is questionable whether buyers would be willing to pay higher prices than those mentioned above. There is no change in the market as to extracted.

New York, Aug. 5. HILDRETH & SEGELKEN.

LIVERPOOL.—Since our last report to you there has been some business on Chilian honey, and about 120 barrels have changed hands—pile X at \$8.16; pile 1 at \$7.68; pile 2 at \$6.96; pile 3 at \$6.00 to \$6.48 per cwt. Jamaican is very quiet at \$6.00 to \$8.40 quoted, and Californian also dull at \$10.08 to \$10.80. We have had little or no enquiry for Hayti; but we think next month should see an improvement, and we hope to make good progress in the autumn. Other descriptions have sold at different quotations as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. Beeswax is steady, with sales of Chilian for shipment at \$36.28 to \$36.88, c. i. f., for f. a. q., and at \$37.48 to \$40.58 from store for medium to fine quality. African sorts are firm with a good trade done, mainly at \$32.88 for Sierra Leone, and \$34.48 for Gambria. Other descriptions are quoted as follows: African, \$32.16 to \$34.48; Jamaican, \$3.84; West Indies, \$32.64 to \$37.48.

Liverpool, July 24.

TAYLOR & CO.

JOIN THE NATIONAL RIGHT NOW

By sending one dollar for its official organ, the BEEKEEPERS' REVIEW, from now to the end of 1913, and then after September 1 send fifty cents for membership to one of the National branches for membership to the end of 1913. This is in accordance with an action taken by the Board of Directors.

The REVIEW now has a board of three editors, thus insuring a more than "one-man" paper. What the REVIEW will have to say about the crop conditions this fall will be worth reading. Remember we have been getting crop reports from our members and subscribers, having sent a blank to each one. Send in your subscription of one dollar now, and reap all the benefits.

The National Beekeepers' Association, Detroit, Mich. 230 Woodland Ave.

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Try the
GENTLE



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Swarthmore
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GOLDEN
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Fine three and five banded
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Untested, 75c; extra-fine queen, \$1.00; extra-fine tested queen, \$1.25; a three-frame nucleus with queen, only \$2.75; full colonies with extra-fine tested queen, \$4.75. Directions for introducing go with each queen.

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Carniolans are the best bees to continue rearing brood during a dearth of nectar and through the fall months. Colonies populous with young bees stand the best chance of wintering well, other conditions being equal. Prices: Select untested, \$1.00 each; \$9.00 per dozen; select tested, \$1.50 each; \$12.00 per dozen; breeders, \$5.00.

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GOLDEN ITALIAN QUEENS

75 cts. each; six for \$4.50; twelve for \$8.00.
Untested, warranted, good for black brood.

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The best and lowest-priced double-wall hive on the market. This hive has ¾ material in the outer wall, and is not cheaply constructed of ½ material as are some other hives on the market. Packing or dead-air space as you prefer. Remember, winter is approaching. Get your bees into comfortable quarters before it is here. Send for a catalog.

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Three-banded Italians . Caucasians . Golden Italians . Carniolans

October 1 to July 1

Untested 1, \$1.00; 6, \$5.50; 12, \$10.00
Select Untested 1.25 6.75 12.75
Tested, \$1.50 each; six, \$8.00; twelve, \$15.00. . .

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Select Untested 1.00 5.50 10.00
Select tested, \$2.00 each; six, \$10.00; twelve, \$18.00.

We charge 10c for clipping a queen's wings. All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are printed on the reverse side of the cage cover. Virgins from good mothers, 40c. Safe arrival and satisfaction guaranteed.

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PRICE \$1.10 POSTPAID.

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NEW CROP HONEY Both Comb & Extracted

Are you looking for a market? New York is as good as any. We handle on commission and buy outright. Write us before disposing of your honey.

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265 Greenwich St., New York

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that produce golden workers of the brightest kind. I will challenge the world on the color of my GOLDENS, and as good honey-getters. Price \$1.00 each; tested, \$2.00. Breeders, \$5.00 and \$10.00.

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Yours truly,
West Salem, Ohio, July 15.

JOSIAH SWINEHART.



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Apiaries, Glen Cove, L. I.

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Boston New England

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Nuciel, Bees by Pound. Ten-page descriptive list free. Untested, 75c. Natural R. C. Golden from imported stock, select untested, 90c; tested, \$1.25. Leaflets, "How to Introduce Queens," 15c; "Increase," 15c; or both for 25c.

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We carry them in stock at Syracuse, N. Y., and can make prompt shipment, having just purchased a motor truck for delivering goods to the railroads. We have heretofore depended on a truckman, who did not always happen to be on hand.

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Syracuse, N. Y.

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. . . FOR . . .

Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . . Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

Get full information,
prices, and samples.

The A. I. Root Company
Medina, Ohio

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Has it ever occurred to you how valuable a source of information, alike for the prospective beekeeper, the beginner, and the veteran, a modern bee-supply catalog is? A careful perusal of one of these catalogs is an education in itself.

The 1912 PEIRCE catalog is one of the most complete ever issued. While every thing is listed that the experienced beekeeper would require, special information is given for the beginner as to outfits required, and numerous questions are answered for his benefit. Illustrations of the various fixtures and appliances employed in bee culture add greatly to the interest and value of the publication.

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**A sanitary, substantial, waxed-paper bottle.
Cheap enough to give away with honey.
Sample mailed free.**



Every beekeeper who produces extracted honey and is interested in building up a home market for his product, will at once be interested in this container. It is neat, does not leak, and is especially desirable for granulated honey, as jars can be filled; and after granulation takes place the consumer can remove the paper bottle, thus leaving a beautiful cone of granulated honey ready for the table. Such packages are not affected by moisture, regardless of any damp climate. The beekeeper can deliver his honey from house to house without the annoyance of

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The jars are now packed in uniform shipping-boxes containing one gross each, complete with stoppers and a stopper-inserter with each gross. Please note the very light weight when packed for shipment, a feature by which transportation by express is often as cheap as by freight.

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Half-pints	1 gross, \$1.50; 6 gross, \$ 8.00	Weight per gross, 13 pounds.
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Perfection Tight Seal Honey-jars

**Improved
Pattern
Reduced
Prices**

Absolutely no leakage. No soiled labels. Desirable for granulated honey. No more rubber bands to taint the contents. Seals air-tight and prevents granulation. Handsome enough to be placed on the tea-table. A jar with no shoulders, making it easy to remove the contents. Each lid contains a wax-paper wad, and nothing could be more sanitary. The smaller jar will contain 5 ounces of honey, the middle-size 11 ounces; and the larger an exact pound. After years of experience in putting up honey for the fancy grocery trade, I have never found a jar that gives such universal satisfaction. All jars packed in corrugated shipping-boxes, which we find better and cheaper than wooden boxes. After filling with honey they can be re-shipped in same case, and the lightness of package saves freight. Breakage in transit out of the ordinary.

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Small, per gross, in corrugated cases.....	\$3.20
Medium, per gross, in corrugated cases.....	4.80
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A descriptive illustrated catalog of a full line of bee-supplies will be mailed to any one interested.

WALTER S. POWDER, 859 Massachusetts Avenue, INDIANAPOLIS, IND.

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If you have a large crop with no local market for the same, let us handle it for you. We buy in any quantity, large or small, and can assure you of satisfactory treatment. Send a good sample, and be sure that you tell us just how your honey is put up, and how much you have. Do not ship any honey to us without instructions, but wait until you have heard from your sample. We will offer a definite price, and give you shipping instructions.

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We still have a good stock of cans, and can make instant shipment of anything in this line. Good cans and shipping cases are an absolute necessity if you would get the best prices for your honey. Even the best honey put up in poor containers will be graded as second class, and honey that in itself isn't the very best will often bring a very fair price if attractively put up.

Write us for information or advice on any beekeeping subject, and your letters will have careful attention.

A full line of Root's supplies always on hand.

TOEPPERWEIN & MAYFIELD

Corner Nolan & Cherry Streets

SAN ANTONIO, TEXAS

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1912. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it **MUST** be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay? We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making, and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make **ROOT'S SECTION-HONEY BOXES** to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count; and you, Mr. BEEKEEPER, if you will buy **ROOT'S SECTIONS**, will understand why.

PRICE LIST OF SECTIONS

4¼x4¼ Beeway Sections—2 inch, 1½, 1¾, 1¾, or 7 to foot wide.

We send 1½ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	\$.80	\$.70	7 lbs.
250	1.60	1.40	18 "
500	2.75	2.50	35 "
1000	5.50	5.00	70 "

Plain or No-beeway Sections—4¼x4¼x1½, 1¾, or 1¾; 4x5x1¾ or 1½; or 3¾x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	\$.80	\$.70	6 lbs
250	1.60	1.40	15 "
500	2.75	2.50	30 "
1000	5.25	4.75	60 "

Price of larger quantities quoted on application.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Chicago Philadelphia New York Des Moines, Washington St. Paul
Distributing Agents Everywhere

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

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Agents Everywhere.

Hamilton, Illinois

Great Majestic

Malleable and Charcoal Iron Range

The Range With A Reputation

Buying a new range is a matter worthy of your most careful consideration. It is a mistake to buy from pretty pictures and glowing printed descriptions—very inferior ranges are plentifully applied with both. Before deciding upon a range, the wise woman will go to the local dealer handling them and examine closely into the superior points of merit of the **Great Majestic**—the range with a reputation, built on honor—of the best materials.

Won't Break or Rust Like Steel—Outwears Three Ordinary Ranges

It is the ONLY range made of malleable iron and charcoal iron. Charcoal iron won't rust like steel—malleable iron can't break, and while the first cost of a Great Majestic may be more than others, it outwears 3 ordinary ranges.

All Copper Movable Reservoir

Heated through copper pocket stamped from one piece of copper, setting against fire. Holds 15 gal. By turning lever, frame and reservoir—moves away from fire—patented feature only on **Majestic**.

Perfect Baker—Fuel Saver

The **Majestic** is put together with rivets—joints and seams remain air tight.

The oven is lined with guaranteed pure asbestos board, put there to stay covered with an iron grate—you can see it. Uses but half the fuel used in other ranges, gives an absolutely even dependable baking heat.

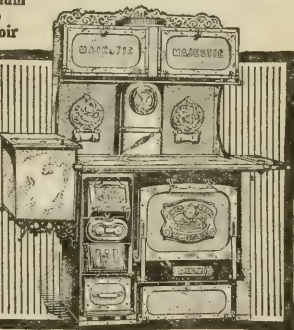
The **Majestic** is for sale by the best dealers in nearly every county in 40 states. Write for our booklet, "Range Comparison."

Majestic Manufacturing Co., Dept. 4, St. Louis, Mo.

Aluminum
Top
Reservoir

Aluminum
Top
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Aluminum
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Reservoir



It Should Be
In Your Kitchen



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 23 Quincy, Ill.



THE "BEST" LIGHT

A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

MAKES AND BURNS ITS OWN GAS



Can you always eat all that you "can"?

After the work of "canning" do you find much of your fruit is spoiled? Then, why persist in using old-style, narrow-necked, tin-topped, screw-capped jars? That was the old way of "canning." The new way, the easier, safer, *better* way is called "jarring," preserving in the all-glass

E-Z SEAL JAR

Try putting up beets, beans, corn and tomatoes for winter use. It is *fun* when you use the E-Z Seal Jar. It has the sanitary all-glass cap—no metal at all. No twisting and turning—the cap clamps with a spring seal. It closes and opens with a *touch* of the finger.

Free Jar — Free Book

Cut out this coupon, take it to your grocer—he will give you one E-Z Seal Jar FREE. Be sure and

write us for FREE Book of Recipes — it tells many things you should know.



In order to secure free jar, present this coupon to your dealer before October 15, 1912, properly filled out.

HAZEL-ATLAS GLASS CO.
Wheeling, W. Va.

This is to certify that I have received one "Atlas" E-Z Seal Jar free of all cost or obligation. This is the first coupon presented by any member of my family.

Name

Address

TO THE DEALER—Present this to jobber from whom you received E-Z Seal Jars. All coupons must be signed by you and returned before November 1, 1912.
DEALER'S CERTIFICATE. This is to certify that I gave one "Atlas" E-Z Seal Jar to the person whose signature appears above.

Dealer's Name

Address

Bank by Mail

The fact that the Savings Deposit Bank Company invites accounts of one dollar or more, and receives deposits by mail from all parts of the State, makes it possible for you to carry a bank account and deposit small amounts at your convenience. You will receive the same attention as if you called personally.

Four per cent compound interest is paid on savings.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS

A. T. SPITZER, Pres.

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The Bank that Pays 4 per cent

W. H. Laws

is now mailing queens every day except Sunday. These queens are going to almost every State in the Union. A statement in public print says, "The postoffice at Beeville has probably cancelled more stamps on queen-cages than any other postoffice in the world." Whether this is true or not, it is true that Laws' queens are giving eminent satisfaction, and old customers are continually reordering their orders.

I am breeding but the one strain of three-banded Red-clover Stock Italians. A square deal and good queens are all that I can promise. I shall be pleased to have your order, which will be filled in rotation; however, I can also take care of rush orders.

Prices: Single queen, \$1.00; six for \$5.00; 100, \$75.00.

ADDRESS PLAINLY

W. H. LAWS, BEEVILLE, TEXAS

MILLER'S STRAIN Red-clover ITALIAN QUEENS

By return mail or money refunded. Bred from my superior breeder; for business, gentle; no better hustler; bees just roll honey in; three-banded; Northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, \$1.00; dozen, \$1.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed. I. F. MILLER, previously of Brookville and Reynoldsville, Pa., a queen specialist for 15 years, is agent and breeder for E. A. Miller. Send all orders to

I. F. MILLER, Rt. 2, Oil City, Pa.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

SPECIAL OFFER on QUEENS

We have on hand about 200 tested Italian queens, one year old, that we will offer at 75 cts. each; 6 for \$4.25. These are queens from our very best stock, and will do good service for at least two more years. Young queens, untested, \$1.00 each, 6 for \$5.00; tested, \$1.25; 6 for \$6.25.

Fred Leininger & Son, Delphos, Ohio

Queens--Queens

Warranted three-banded Italian queens, 75 cts. each; \$4.25 per 6; \$8.00 per dozen. If these queens fail to give satisfaction you can have your money back.

L. H. ROBEY

WORTHINGTON, WEST VIRGINIA

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits, are far better and more prolific than the ones hatched from a natural swarm or superscedure cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us. Untested queens, 75 cts.; dozen, \$8.00.

WALLIN & CORLIS, BROOKSVILLE, KY.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
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When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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BEE CULTURE

The only cyclopedia on bees, 536 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$1.50 postpaid; money refunded if unsatisfactory. Catalog of supplies and sample copy of our semi-monthly magazine, *Gleanings in Bee Culture*, free if you mention this paper. *Gleanings in Bee Culture*, Medina, Ohio.

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Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Gleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

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Town

G.B.C. 8-15 12 State

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say what you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality, in new 60-lb. cans at 9c per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality new clover honey in 60-lb. tin cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

Fine white and light amber alfalfa honey put up in any size of tin package, any quantity. DADANT & SONS, Hamilton, Ills.

FOR SALE.—Catclaw honey. Fine body and flavor; \$5.00 per 5-gallon can, f. o. b. Prescott, Ariz. Sample, 5 cts. L. B. BELL, Camp Verde, Ariz.

FOR SALE.—Clover and basswood honey in 60-lb. cans; also buckwheat honey in season. Sample furnished. B. B. COGGSHALL, Rt. 12, Groton, N. Y.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—Honey in 60-lb. cans, two in case; white, 8 cts.; amber, 7½; buckwheat, 7, f. o. b. here. Sample, 10 cts. ROBT. CONN, Roaring Branch, Pa.

No. 1 white comb honey, \$3.50 per case of 24 sections, six cases to carrier; clover extracted in 60-lb. cans, 9 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Two carloads of choice sage honey by the can or case. Sample of honey and desirable California souvenir free for a stamp. C. W. DAYTON, Chatsworth, Cal.

RASPBERRY HONEY.—Our crop of raspberry honey this season is very fine—the best in quality I ever saw. It was left on the hives until it was all sealed, and thoroughly ripened by the bees. Thick, rich, and delicious. It is put up in new 60-lb. tin cans. Price \$6.00 per can. Large-sized sample by mail, 10 cts. Said 10 cts. may be deducted from any order sent for honey. ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. JOHN O. BUSEMAN, 2828 Germantown Ave., Philadelphia, Pa.

WANTED.—White comb honey and well-ripened white extracted honey. ALBERT G. HANN, Pittstown, N. J.

WANTED.—A quantity of No. 1 clover and basswood comb honey; also extracted, well ripened. State price. J. C. HINDMAN, Grove City, Pa.

White-clover comb and extracted; state lowest prices. We do not want the tall section. D. J. BLOCHER, Pearl City, Ill.

WANTED.—Honey wholesale. Would like to hear from those having comb honey in car lots to market. Heretofore we have at times sustained the market by buying heavily and holding, on one occasion carrying some 40 carloads three months. If you need us let us hear from you with particulars. THOS. J. STANLEY, Manzanola, Otero Co., Col.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight. G. F. STANTON, Buckingham, Fla.

FOR SALE.—Get more money for your comb honey. Send for complete free sample of selling plan, to W. S. SHAFER, Dept. G, South Omaha, Neb.

FOR SALE.—Two-frame Cowan extractor with melting-can. Little used, \$10.00. G. A. EDGAR, Wyman, Iowa.

ALUMINUM HIVE NUMBERS (1½ in. high), 2 cts. (each fig.); 50 or more, 1½ cts., postpaid, incl. brass nails. HENRY BENKE, Pleasantsville Sta., N. Y.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new; two cans to a case, at 25 cts. per case. C. H. W. WEBER, Cincinnati, O.

For sale or exchange for income-bearing property, our entire business, 1500 colonies of bees and fixtures. Reason for selling, poor health. OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

New crop white-sweet-clover seed, 4 lbs. by mail, prepaid, \$1.12; 50 to 100 lbs., 15c per lb., hulled; unhulled, 3c less. Alfalfa seed, same price. R. L. SNOODGRASS, Rt. 4, Augusta, Kan.

One-lb. screw-top bottles, \$3.75 per gross; two 5-gallon cans, 59 cts. Bees, supplies, queens, comb, and extracted honey for sale. W. C. MORRIS, Neperhan Heights, Yonkers, N. Y.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Recleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

FOR SALE.—New 60-lb. cans, two in a case; lots of 10 cases, 60 cts. each; 25 cases, 59 cts. each; 50 cases, 58 cts. each; 100 cases, 57 cts. each, f. o. b. factory in Ohio or Illinois. Quotations furnished on any thing in cans. Give quantity wanted. Large contract enables us to make low prices. A. G. WOODMAN CO., Grand Rapids, Mich.

A 30-day sale. Best No. 1 sections, per 1000, \$4.00; 2000, \$7.60. Plain, 25 cts. less. White-pine hives, 8-frame with super, \$1.25; 10-frame, \$1.40. Shipping-cases, 24-lb. 12-inch glass, 15 cts. Motherwort seeds, best honey-plant, big package, 10 cts. postpaid. Catalog free. H. S. DUBY, St. Anne, Ill.

HELP WANTED

WANTED.—Four or five helpers to assist me in a large house-to-house honey-selling business. A rare chance to learn a business that will pay a fancy income. JOHN C. BULL, Valparaiso, Ind. R. D. 8

POSITIONS WANTED

A beemaster from Alsace, Germany, 24 years old, wishes position as beekeeper's assistant with some large beekeeping establishment by March or April, 1913. Inquiries welcomed. JOSEF GARRE, Rt. 17, Grand Ridge, Ill.

BEEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

100 selected Italian queens at 75 cts. each. A bargain.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Untested Italian queens, hustlers, 75 cts.
MRS. J. W. BACON, Waterloo, N. Y.

Choice warranted golden Italians ready, \$1.00.
J. B. CASE, Port Orange, Fla.

Golden Italian queens, nuclei, and full colonies.
See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAUST, Factoryville, Pa.

Virginia queens, raised in full colonies, ready by May 1. All dead ones replaced free.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—50 to 200 colonies, eight-frame, good condition, Sept. 15.
E. F. ATWATER CO., Meridian, Ida.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

FOR SALE.—Golden untested queens, 75 cts. each, or \$7.25 per dozen; safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

Breeding and untested queens now ready for mailing; untested, \$9.00 per dozen; breeders, \$10, \$5, \$2.50. DOOLITTLE & CLARK, Marietta, N. Y.

FOR SALE.—Untested golden Italian queens, 50 cts. each; four hybrid Italian queens, \$1.00.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Two-comb nuclei; also ten colonies Italian bees in Danzenbaker hives; first class; \$3.80 per colony. HARRY C. KLAFFENBACH, Muscatine, Ia.

Front Line Italian queens, well bred and hardy. Now 75 cts. each; 6 for \$4.25; 12 for \$8.00, by return mail.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Italian queens, 75 cts. each. Write for prices of eight-frame hive and two-frame nucleus.
M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Golden Italian queens. Tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

QUEENS.—Improved strain of Italians. Untested, 75 cts.; tested, \$1.00; select tested, \$1.50. Sure to please. Prompt attention to orders.
GEO. H. REA, Reynoldsville, Pa.

Northern-bred Wisconsin Italian queens; extra hardy; gentle and prolific. Untested, \$1.00; tested, \$1.50; breeders, \$3.00 to \$5.00.
LEWIS FRANCISCO, Mosinee, Wis.

Hardy northern-grown queens of Moore's strain of Italians, ready for prompt shipment. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. Write for lots of 100 or more.
P. B. RAMER, Harmony, Minn.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

FOR SALE.—Early "Italian" (frofalcon) queens. March delivery, untested, \$1.50 each; April, \$1.25. Tested queens, 50 cts. additional; select tested, \$1 extra.
JOHN C. FROHLIGER,
257, 259 Market St., San Francisco, Cal.
Berkley, Cal.

FOR SALE.—80 colonies of bees and supplies; 3½ acres; house and barn, ½ mile from city.
E. W. SUTCLIFFE, Weatherford, Texas.

FINE ITALIAN QUEENS.—Prolific, hardy, gentle. Root strain. Untested 75 cts. each; 6 for \$4.25.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—18 colonies of bees on Hoffman frames. Must be sold soon. Make an offer for the lot.
JACOB PROBST, Florence, N. J.

FOR SALE.—Limited number of choice Italian, also Banat Italian queens, at 50 cts. each, all under one year, to close out.

EDWARD REDDOUT, Box 43, Lysander, N. Y.

FOR SALE.—Golden queens, remainder of season, 60 cts. each for untested; 90 cts. each for tested. Safe arrival and perfect satisfaction guaranteed.
R. O. COX, Box 8, Garland, Ala.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Va.

Nucleus and full colonies. Bees by the pound. Apiaries inspected for brood diseases. Tested and better grades of bees. Root's bee supplies. Write for circular and catalog.
FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25.
C. B. BANKSTON,
Buffalo, Leon Co., Texas.

Fine Italian queens from hardy industrious stock; quiet to handle, good comb-builders, and white cappers. Nothing but selected stock used for breeding. Guaranteed free from disease. Untested, 75 cts.; select untested, \$1.00; select tested, \$1.50.
A. J. SEAVEY, Rt. 2, Farmington, Me.

Curd Walker's strain of red-clover Italian bees have come to the front to stay; very gentle, great honey-gatherers. Prices, untested queens, \$1.00; 6 for \$5.00; tested, \$1.50 each; breeders, \$5.00 to \$10.00 each.
CURD WALKER, Queen-breeder,
Rt. 1, Box 18, Jellico, Tenn.

Golden Italian queens that are golden to the tip, that will produce golden workers, hardy, and honey-gatherers, that I have worked 15 years to produce, and which will please all who try them. My mating should run up to 90 per cent pure or better. Queens from \$1.00 to \$20.00. Send for booklet. No orders booked by return mail before August 1.

I will guarantee to deliver no more queens from this date. I am booked full. Those who have ordered queens will have to wait until I can fill the order or request their money back.
GEO. M. STEELE, 30 S. 40th St., Philadelphia, Pa.

QUEENS and ½-lb. packages. A strain of three-banded Italian honey-gatherers now ready for you. None better, none cheaper. Untested Italian queens, 50 cts. each, half-pound bees with untested queen, \$1.75. D. S. Jenkins writes: "I got more bees in half-pound package from you than out of one-pound packages from others, and your queens would be laying next morning after released; and the other fellow's queens it would take some of them four days to commence. You have treated me right." Safe arrival and satisfaction guaranteed.

W. D. ACHORD, Fitzpatrick, Ala.

Queens from Georgia; blacks and hybrids. Three for \$1.00. Tested red-clover Italians, \$1.00 each. Safe arrival guaranteed.

JOHN W. CASH, Bogart, Ga.

FOR SALE.—Italian queens, untested, 75c.; tested, \$1.00. Bees by the pound, nucleus, or full colonies. Red-clover bees.

EUGENE S. WATSON, Rt. 2, Madison, Me.

FOR SALE.—35 colonies of our strain of Italian bees in 8-frame painted hives; Hoffman frames, wired; new combs; \$5.00 per colony at yard, including queens. Bargain.

DOOLITTLE & CLARK, Marietta, N. Y.

FOR SALE.—800 colonies of Italian bees, more or less, situated in five yards; all in good condition, on this beautiful island of Jamaica, a land of perpetual sunshine; flowers nearly the whole year round; good investment for a practical up-to-date beekeeper to take hold of now. Write for further particulars to

DAVID MARCALLECK,
Morant Bay, Jamaica.

FOR SALE.—200 stands of Italian bees at a bargain; only \$3.90 if taken on stand; mostly in ten-frame dovetailed hives; some in eight-frame hives. Here is a good chance to buy a carload of bees together with your neighbors if you can't use them all. I have plenty of empty hives and supers at a bargain to fill the car. These bees are at Alma,

J. L. FAJEN, Stover, Mo.

FOR SALE.—Italian queens, bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one frame, \$1.50; two-frame, \$2.00; three-frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circular. Virgin queens from my best breeders, 40 cts. each; three for \$1.00.

ROBT. B. SPICER, Wharton, N. J.

FOR SALE.—Famous North Carolina-bred Italian queens; bred for honey-gathering; long-lived; prolific; hardy; beautiful. My bees are superior honey-gatherers. My queens give satisfaction. I have the Root-Moore strain, Davis', Quirin's, Laws' choice imported breeders to get my fine honey-gathering strain from. I had a fine breeder I sold to Hon. W. C. Fleming, of Greensboro, N. C., last year. He says her bees produced over 200 pounds of choice comb honey last May. His price on her was \$20. I rear all cells in two-story colonies running over with bees at all times. I don't rear any thing but red-clover and golden. No foul brood. Untested, 75c.; dozen, \$7.00; tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; breeders, \$3.00 and \$5.00.

H. B. MURRAY, Liberty, N. C.

INDIAN RUNNER DUCKS

White Indian Runner duck eggs. High fertility guaranteed. Running water.

OTTO WESTFELT, Halcyon, Cal.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free.

KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS, American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.

C. O. YOST, Rt. 4, Box D, Winchester, Ind.

MISCELLANEOUS

FOR SALE.—Professional photographers' portrait camera and stand, lens, aplamat, B No. 5, 13x11. If you want to get a good outfit cheap, address

C. B. MASON, Butler, Indiana.

WANTS AND EXCHANGES

WANTED.—An apiary in the Arkansas Valley, or a partner in a carload. R. S. BECKTELL, Rifle, Col.

WANTED.—To exchange Root bee supplies, either for money or honey. Catalog.

E. W. PEIRCE, Zanesville, Ohio.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.

ERNEST W. FOX, Clint, Texas.

REAL ESTATE

FOR SALE.—A clean established apiary, located near river and railroad depot in this city. A bargain.

H. C. ADLER, Victoria, Texas.

FOR SALE.—Apiary of 105 colonies of bees, with or without location; $\frac{3}{4}$ of an acre of ground in the edge of village, and planted to all kinds of fruit; about 40 trees are now bearing. Beeyard is enclosed with six-foot tight fence, which is lined inside with grapevines, currants, gooseberries, and blackberries. Frame shop and honey-house $1\frac{1}{2}$ story; 65-barrel cistern; corn-crib; chicken and hog yards; every thing one needs but dwelling house. This would be a fine location for a queen-breeder—not over a dozen colonies of bees within $1\frac{1}{2}$ miles of the yard. No disease, and have never had any. The bees are all in good shape; hives as good as new; combs built on Hoffman frames; wired foundation, except possibly 100 frames. I spent \$500 in fitting up my yard, not counting my labor. Land sells here from \$200 to \$400 per acre. I am nine miles below Zanesville, on the Muskingum River, overflowing creek and river bottoms west, south, and east of me. The location is No. 1; have had but one failure in 21 years that I have kept bees; good market for honey near. My crop is sold, and not all off yet, at \$3.75 per case. Any one buying the property will get good hive-stands, what winter cases I have, shade-boards, cushions, etc. I will take \$1000 for ground and bees, and a low price for extras, or will sell the bees, to be moved, for \$500.

J. F. TRUEDELL, Duncan's Falls, O.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

QUIRIN'S famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

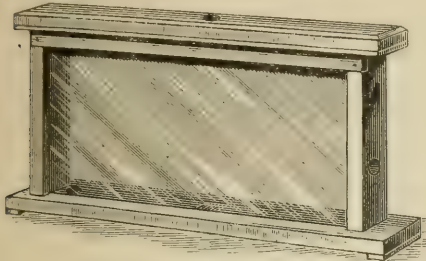
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

WHEELBARROW WHEELS.

We have on hand quite a number of extra steel wheelbarrow wheels which ordinarily sell for \$1.75. To reduce stock we offer these, while they last, at \$1.25 each; 3 for \$3.00. They are 28 inches in diameter; tire $1\frac{1}{2}$ inches wide; eight $\frac{3}{8}$ -inch steel spokes in a cast hub 4 inches long. Axle is $\frac{3}{4}$ inch in diameter for $13\frac{1}{2}$ inches, with bearing at each end $2\frac{1}{4}$ inches long by scant $\frac{1}{2}$ -inch diameter.



OBSERVATION HIVES, OLD STYLE.

We have found at another of our agencies some more of the old-style observation hives as shown in illustration. We will furnish them, while they last, at 35 cents each in flat, without glass. Each hive requires two pieces of glass 9×19 to fit it up when nailed. Unless ordered with other goods we will ship direct from Osceola Mills, Pa., which is near the center of the State.

SHIPPING-CASES, SECOND-HAND, NAILED UP.

We have an accumulation of second-hand shipping-cases from which comb honey has been sold or repacked. Some of them are of our own make, and practically as good as new, while more of them are western-made pine cases, somewhat rougher than our make, and not so desirable. We have tried to price them according to their value. The list available is as follows, and offered while they last:

126 cases, $10\frac{1}{2}$ -inch, 4-row, for 24 sections, $4\frac{1}{4} \times 7$ to foot or $1\frac{3}{4}$; \$1.20 for 10; \$5.50 for 50; \$10.00 for 100; \$12.00 for the lot.
406 cases, $11\frac{1}{2}$ -inch, 4-row, for 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$; \$1.20 for 10; \$5.50 for 50; \$10.00 for 100. About two-thirds of these have a wooden slide in place of glass, and will be sold at 2 cts. each less without the glass.

96 cases, 12-inch, 4-row, for 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$ to 2-inch; \$1.20 for 10; \$5.50 for 50; \$9.50 for lot.

189 cases for 24 sections, $4 \times 5 \times 1\frac{1}{2}$; \$1.30 for 10; \$6.00 for 50; \$11.00 for 100; \$19.00 for lot.

55 cases for 24 sections, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$; \$1.30 for 10; \$6.00 for lot.

26 cases for 24 sections, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$; \$1.40 for 10; \$3.00 for lot.

Most cases include glass. If wanted in carriers, add 5 cts. per case to cover cost of carrier.

OLD-STYLE EXTRACTORS.

We have a few extractors which we offer at bargain prices because they are not of our latest pattern. They do not have ball bearings, die-molded gears, nor the slip-gear device. Otherwise they are new machines which sold for much higher prices than we ask for them now to close out. They are located at different branch offices, and are offered at the prices named for shipment direct from the office where they are now stored.

At Des Moines, Iowa, 4 No. 15 Cowan, L. size two-frame machines, offered at \$9.00 each, and one No. 17 Cowan with 12-inch comb-pockets, offered for \$10.00.

At Mechanic Falls, Me., No. 4 15 Cowan, L. size two-frame machines offered at \$9.00 each, and 2 No. 4 Novice for short frames, 13 inches or less in depth, and $13\frac{1}{4}$ inches in width or less, offered at \$7.00 each.

At Syracuse, N. Y., 3 No. 15 Cowan L. size, two-frame, offered at \$9.00 each. One No. 5 Novice, L. size, two-frame, offered at \$7.00.

At New York, one No. 17 Cowan two-frame, with 12-inch comb-pockets, offered for \$10.00.

At Philadelphia, Pa., one No. 17 Cowan two-frame, offered for \$10.00. One No. 18 Cowan, two-frame, with $12\frac{1}{2}$ -inch comb-pockets, offered for \$10.50. One No. 25 Cowan four-frame, L. size, offered for \$16.00.

At Washington, D. C., one No. 15 Root Automatic L. size; price \$10.00.

SHIPPING-CASES AT BARGAIN PRICES.

We have dropped from our catalog certain sizes of shipping-cases while we still have some of them in stock. We are making changes in some other styles, and desire to close out what stock we have of older patterns. For these reasons we offer the following cases, while stock lasts, at special prices. If you do not see in the list what you want, write to us, advising the number and size wanted, and we will quote you.

16-lb. two-row cases to hold 16 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
24 crates of 50 each, with two-inch glass; price \$5.00 per crate.

10 crates of 10 each; price \$1.00 per crate.
6 crates of 50 each, with three-inch glass; price \$5.25 per crate.

12-lb. two-row cases to hold 12 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
26 crates of 50 each, with three-inch glass; price \$4.50 per crate.

For 12 sections $4\frac{1}{4} \times 1\frac{1}{2}$ or 10 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
10 crates of 50 each, with three-inch glass; price \$4.00 per crate.

10 crates of 50 each, with three-inch glass; price \$4.25 per crate.

12-lb. three-row cases to hold 12 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
52 crates of 50 each, with three-inch glass; price \$5.25 per crate.

20 crates of 50 each, with two-inch glass; \$5.00 per crate.

12-lb. three-row cases to hold 12 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
22 crates of 50 each, with two-inch glass; price \$4.75 per crate.

15 crates of 50 each, with three-inch glass; price \$5.00 per crate.

11 crates, 10 each, with three-inch glass; price \$1.00 per crate.

24-lb. four-row cases for 24 sections $4\frac{1}{4} \times 1\frac{1}{2}$, or 20 sections $4\frac{1}{4} \times 1\frac{1}{2}$.

25 crates of 50 each, with three-inch glass; price \$7.50 per crate.

8 crates of 10 each, with two-inch glass; price \$1.60 per crate.

Cases for 20 sections $4 \times 5 \times 1\frac{1}{2}$.
7 crates of 50 each, with three-inch glass; \$6.50 per crate.

Cases for 12 sections $4 \times 5 \times 1\frac{1}{2}$.
14 crates of 50 each, with three-inch glass; \$5.00 per crate.

Cases for 12 sections $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$.
16 crates of 50 each, with three-inch glass; \$5.00 per crate.

24-lb. cases for 24 sections $4\frac{1}{4} \times 1\frac{1}{2}$.
66 crates of 50 each, with two-inch glass; \$8.00 per crate.

This stock is at Medina. We also have some stock of similar cases at other offices which we will furnish at same prices, while they last, on orders specifying these prices.

I have taken GLEANINGS about three years, and I tell you, Mr. Root, that I have enjoyed and received very much benefit from reading your good straightforward talks. It has helped to lead me to higher thoughts and deeds and to become a Christian last winter. I am 27 years old; keep 24 colonies of bees, and help my father care for a vineyard. We are located on the west shore of Lake Keuka, and people are engaged largely in grape culture around here.

Pulteney, N. Y.

FRED COLE.

ON p. 381 of our issue for June 15 the article on shallow dummies was credited to Leon C. Miller instead of Leon C. Wheeler.

HONEY LABELS

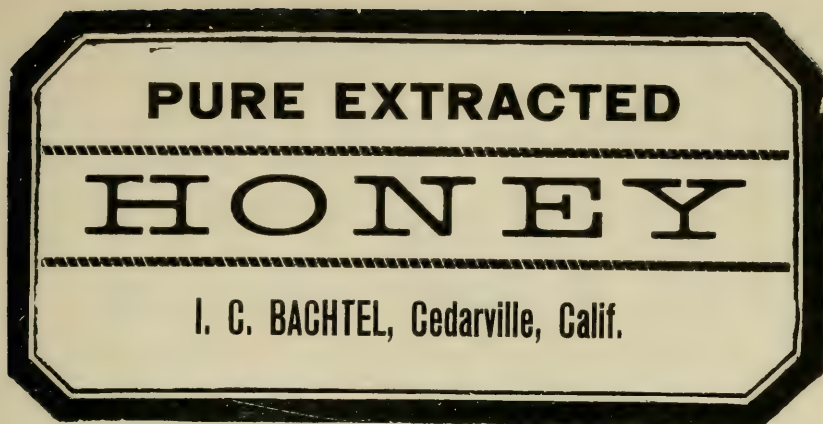
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.



No. 94.—Bronze on glazed paper, 250, 90c; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.

No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

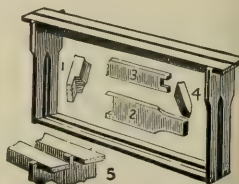
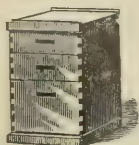
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Des Moines, 565 W. Seventh St.
Syracuse, 1631 Genesee St.

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Distributing Depots in Many
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The A. I. Root Company

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MEDINA, OHIO



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Cleanings in Bee Culture



VOL. XL. SEPT. 1, 1912. NO. 17.

Take One of these Special Offers on Gleanings in Bee Culture if you want to Get More Profit and Pleasure from your Bees.

You have probably read our announcement of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1912. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers).

These Combination Offers Afford Still Greater Values.

GLEANINGS IN BEE CULTURE

(One Year)

	with the A B C and X Y Z of Bee Culture, the leading text on bee-keeping. Described on page 53	\$ 2.25
“	with Dr. Miller's Fifty Years Among the Bees Described on page 54	\$ 1.50
“	with W. Z. Hutchinson's Advanced Bee Culture. Described on page 52	\$ 1.50
“	with T. B. Terry's great book, How to Keep Well and Live Long. Page 57	\$ 1.50
“	with Milo Hastings' book on practical poultry culture, The Dollar Hen See page 57	\$ 1.50
“	with the new revised edition of the A B C of Potato Culture, by T. B. Terry and A. I. Root. Page 57	\$ 1.00
“	with your choice of any ONE of the following books from the GLEANINGS library: Townsend Bee-book, Doolittle's Year's Work in an Out-apiary, Alexander's Practical Bee Culture, Hand System of Swarm Control, Natural History of the Honey-bee	\$ 1.00

Canadian postage on each of above combinations 30 cts. extra. Foreign post., 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON.

I enclose \$_____ for combinations checked.

Name _____

Address _____

Don't forget extra postage for Canada or foreign countries.

"falcon" QUEENS

Three-banded Italians . Caucasians . Golden Italians . Carniolans

October 1 to July 1

July 1 to October 1

Untested 1, \$1.00; 6, \$5.50; 12, \$10.00
Select Untested 1.25 6.75 12.75
Tested, \$1.50 each; six, \$8.00; twelve, \$15.00. . . .

Untested 1, \$.75; 6, \$4.25; 12, \$ 8.00
Select Untested 1.00 5.50 10.00
Select tested, \$2.00 each; six, \$10.00; twelve, \$18.00.

We charge 10c for clipping a queen's wings. All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are printed on the reverse side of the cage cover. Virgins from good mothers, 40c. Safe arrival and satisfaction guaranteed.

"falcon" SHIPPING-CASES "falcon"

Insure safe arrival of your comb honey, and better price, by using the best protection cases made. Get our prices of SAFETY CASES, and regular cases with corrugated pad, top and bottom, and corrugated follower. Dealers everywhere. Red catalog postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from



Free Bee Book



This is a catalog of bee supplies, but contains much information you will be glad to read. Ask for

Blanke's BEE BOOK

Get our prices on honey cans and jars. You will need them this fall. Don't wait till then.

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.

Providence, R. I.

Nature Education and Recreation

For Boys and Girls:

NATURE AND SCIENCE (of St. Nicholas Magazine), - Per Year, \$3.00

For Men and Women:

THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00 \$4.00

BOTH, ONE YEAR, \$3.00; sample of either, 10c.

For Teachers:

"How Nature Study Should be Taught," (203 pgs.) - Postpaid, \$1.00

For Everybody:

"The Spirit of Nature Study," (222 pgs., illustrated) - Postpaid, \$1.00

"Walking; a Fine Art," (164 pgs., illustrated) - - - Postpaid, \$1.50

"Three Kingdoms," the handbook of the AA - - - Postpaid, .75

For Plants:

Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

PROTECTION HIVE

The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply constructed of $\frac{1}{2}$ material as are some other hives on the market. Packing or dead-air space as you prefer. Remember, winter is approaching. Get your bees into comfortable quarters before it is here. Send for a catalog.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

COLUMBUS.—Fancy white comb is in light receipt, and selling at 17½.

THE EVANS & TURNER CO.

Columbus, O., Aug. 19.

BOSTON.—Fancy white comb honey brings 16 to 17; No. 1 ditto, 15 to 16; white extracted, 10 to 11; light amber, 9 to 10; amber, 8 to 9. Beeswax, 30.

Boston, Aug. 20.

BLAKE-LEE CO.

BUFFALO.—No change in market since last report. Arrivals of new honey are more liberal, with slow demand. We think prices will have to be lowered a little to start free buying. Fancy white comb brings 17 to 18 for No. 1.

Buffalo, N. Y., Aug. 12. W. C. TOWNSEND.

INDIANAPOLIS.—Extracted honey of finest quality in five-gallon cans is selling at 10½ to 12, according to quantity. No. 1 and fancy white comb sells for 16 to 17. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Aug. 20.

WALTER S. POWDER.

CINCINNATI.—Some new honey has arrived and is selling slowly from 14 to 16 cents, according to grade and quantity. There seems to be considerable honey offered. There is only a fair demand for extracted honey, white bringing 9 to 9½; light amber in barrels, 7; in cans, 8 to 8½. Beeswax is selling slowly at \$33.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, O., Aug. 19. C. H. W. WEBER & CO.

SCHENECTADY.—Since our last report, comb honey has come in quite freely. The quality grades mostly No. 1 clover, and sells quick at 15 cts., but dealers will take only a few cases, as they do not care to lay in a stock for fear prices will be lower later on; but as there was no stock carried over by them they are obliged to pay for present demand. Fancy white would bring a cent or two more. We have sold some dark at 12 and 13, but the supply is quite limited at this date.

CHAS. MCCULLOCH.

Schenectady, N. Y., Aug. 20.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us, for rendering. . . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . . YOU CAN'T APPROACH THAT FOR PROFIT. . . . We need great quantities of Comb and Extracted Honey. . . . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

SPECIAL DELIVERY

We have anticipated the needs of beekeepers for prompt delivery of supplies during the month of July, and have an unusually large stock from which to draw.

The honey-flow is promising larger than most beekeepers were prepared for, but we have sections and foundation on hand ready for instant shipment, so not a single pound of honey need be lost because of insufficient room in which to store it. Sections of all the standard sizes are here in the original packages, and we can put your name on a package of any size just as soon as your order reaches us.

You will find it will pay you, too, to use foundation liberally this season. Starters are good but full sheets are better, and you can very materially increase your honey crop by giving the bees this little assistance.

We buy honey too, and you will find us ready to give you a good price for your crop, and we can assure you of fair treatment.

Whatever your needs in the beekeeping line, we can supply them promptly, and we are glad to answer questions at any time.

C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

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Editor.

A. I. ROOT

Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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Honey Reports continued from page 2.

ALBANY.—The honey demand increasing now. We quote white comb 15 to 16. Possibly we could safely quote 2 cents higher for single cases of strictly fancy in quality, style, etc. No buckwheat is appearing yet; it would sell at 13. Extracted is quiet as yet, at 8 to 9 for white clover or basswood.

Albany, N. Y., Aug. 22. H. R. WRIGHT.

KANSAS CITY.—The receipts of both comb and extracted are light, especially comb honey. We are selling our receipts of comb honey as fast as they arrive. We quote: No. 1 white comb, 24-section cases, \$3.50; No. 2, \$3.00 to \$3.25; No. 1 amber, \$3.25; No. 2, \$3.00; extracted white, per lb., 8 to 8½; extracted amber, 7 to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Aug. 20.

ST. LOUIS.—New comb honey commences to arrive from Southern apiaries, and choice white is selling at 16 to 17; amber, 14 to 15, and dark, 11 to 12. We have no new prices on extracted honey to report. There is a good supply and demand for choice Southern in barrels, at 7 cents, and in five-gallon cans at 7½. Beeswax is in good demand at 29 cents for prime; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Aug. 20.

ZANESVILLE.—Honey, particularly comb, is moving a little better now than for some time past. The jobbing trade is still understocked, and now is a more favorable time for producers to unload than later; 14 to 16 cts. is being offered producers for No. 1 and fancy white-clover comb, and 8 to 8½ for best white extracted. Prices to the trade are arbitrary as yet, but grade from 19½ down, on comb, according to grade and quantity. As heretofore, producers of beeswax are offered 28 in cash or 30 in exchange for supplies.

Zanesville, O., Aug. 21. E. W. PEIRCE.

CHICAGO.—Comb honey has sold promptly upon arrival during the month, and up to this date there is none that has been on the market beyond the time necessary to get it in shape to sell. The price ranges from 17 to 18 for No. 1 to fancy white. There has not been much inquiry for the amber grades, and practically none are offered. Extracted is without change, but is not active. For clover and basswood in the 60-lb. tin cans, sales are made at 9 to 10 cts. Amber grades range from 7 to 8. Beeswax remains unchanged at from 30 to 32, if free from sediment and other foreign matter.

Chicago, Ill., Aug. 21. R. A. BURNETT & CO.

SAN FRANCISCO.—The demand for comb honey is still beyond the supply, and fancy No. 1 is still very limited, and the shipments are taken up immediately on arrival. Extracted honey, too, has come in, and several carloads have arrived, and the demand for water-white honey is beyond the supply. There is a good supply of the amber and light-amber honeys; and from present indications the demand will be met. Fancy white comb brings 16 to 17; dark to amber, 13½ to 15; river comb, 11 to 12½. Water-white extracted brings 8 to 8½; light amber, 7½ to 8; amber, 6 to 7½; lower grades, 5 to 6½. Beeswax brings 27½ to 30 for nice yellow; 23 to 26 for the dark.

San Francisco, Aug. 15. J. C. FROHLICER.

LIVERPOOL.—Since we last wrote you, there has been scarcely any inquiry for honey. The only sale of Chilean is 22 barrels at \$7.20, pile 3. California market is quiet. Thirty cases of fine sold at retail at \$11.04; Jamaican, \$6.00 to \$8.40 per cwt. is quoted; only a few barrels sold. We hope the demand will come on shortly. Other descriptions are quoted as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilean, \$5.72 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.80. Beeswax, 15 bags Chilean sold at \$37.48 to \$39.02 for medium to fine. The market is steady, but without much inquiry. Other descriptions are quoted as follows: African, \$33.16 to \$34.48; Jamaican, \$37.00; West Indies, \$32.64 to \$36.28.

Liverpool, Aug. 10.

TAYLOR & CO.

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By sending one dollar for its official organ, the BEEKEEPERS' REVIEW, from now to the end of 1913, and then after September 1 send fifty cents for membership to one of the National branches for membership to the end of 1913. This is in accordance with an action taken by the Board of Directors.

The REVIEW now has a board of three editors, thus insuring a more than "one-man" paper. What the REVIEW will have to say about the crop conditions this fall will be worth reading. Remember we have been getting crop reports from our members and subscribers, having sent a blank to each one. Send in your subscription of one dollar now, and reap all the benefits.

The National Beekeepers' Association, Detroit, Mich.
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That fill the supers quick
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They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

Queen-breeder,

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NEW YORK.—New crop of comb honey is in good demand, and receipts are gradually getting larger, and will continue so from now on. Fancy white sells at 15 cts., with some exceptionally fine stock at 16; No. 1 at 14, No. 2 at 13, per pound, and amber at 12. No buckwheat is on the market as yet, and we do not expect any for ten days or two weeks. Extracted is in fair demand at 8½ to 9 for white clover; 7½ to 8 for fancy light amber; 7 to 7½ for amber. No change in beeswax.

New York, Aug. 19. HILDRETH & SEGELKEN.

Gleanings in Bee Culture

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Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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NEW CROP HONEY Both Comb & Extracted

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Forty Years' Experience in Queen-rearing,
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I am at last up with all contracts, and can fill orders by return mail—two to five dozen daily. Prices for remainder of season: Untested, one, 75c; six, \$4.00; twelve, \$7.50. Tested, double these prices. The very best breeder, \$10.00. Select breeder, \$5.00.

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 Cheap enough to give away with honey.
 Sample mailed free.



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Improved
Pattern
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The A. I. Root Company
Medina, Ohio

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is now mailing queens every day except Sunday. These queens are going to almost every State in the Union. A statement in public print says, "The postoffice at Beeville has probably cancelled more stamps on queen-cages than any other postoffice in the world." Whether this is true or not, it is true that Laws' queens are giving eminent satisfaction, and old customers are continually renewing their orders.

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By return mail or money refunded. Bred from my superior breeder; for business, gentle; no better hustler; bees just roll honey in; three-banded; Northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, \$4.00; dozen, \$7.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed. I. F. MILLER, previously of Brookville and Reynoldsville, Pa., a queen specialist for 15 years, is agent and breeder for E. A. Miller. Send all orders to I. F. MILLER, Rt. 2, Oil City, Pa.

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100	\$.80	\$.70	7 lbs.
250	1.60	1.40	18 "
500	2.75	2.50	35 "
1000	5.50	5.00	70 "

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We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

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100	\$.80	\$.70	6 lbs
250	1.60	1.40	15 "
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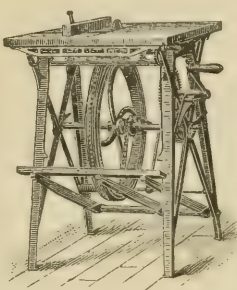
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Golden and three-banded Italian queens. Tested, \$1.00 each; 3 for \$2.75; 6 or more, 85 cts. each. Untested, one, 75 cts.; 3, \$2.00; 6 or more, 65 cts. each. There is no disease here. Bees, per lb., \$1.00; nuclei, per frame, \$1.25. C. B. BANKSTON, Buffalo, Leon Co., Texas.

Fine Italian queens from hardy industrious stock; quiet to handle, good comb-builders, and white capers. Nothing but selected stock used for breeding. Guaranteed free from disease. Untested, 75 cts.; select untested, \$1.00; select tested, \$1.50.

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FOR SALE.—Famous North Carolina-bred Italian queens; bred for honey-gathering; long-lived; prolific; hardy; beautiful. My bees are superior honey-gatherers. My queens give satisfaction. I have the Root-Moore strain, Davis', Quirin's, Laws' choice imported breeders to get my fine honey-gathering strain from. I had a fine breeder I sold to Hon. W. C. Fleming, of Greensboro, N. C., last year. He says her bees produced over 200 pounds of choice comb honey last May. His price on her was \$20. I rear all cells in two-story colonies running over with bees at all times. I don't rear any thing but red-clover and golden. No foul brood. Untested, 75c.; dozen, \$7.00; tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; breeders, \$3.00 and \$5.00. H. B. MURRAY, Liberty, N. C.

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WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.
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FOR SALE.—One 20-acre farm; 130 colonies of bees; no better honey locality in Wisconsin.
LEWIS FRANCISCO, Mosinee, Wis.

WANTED.—About 100 hives, bees, and location in California.
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WANTED.—To rent an apiary of from 200 to 300 colonies for the season of 1913. For further particulars address
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WANTED.—Small California property in good bee locality; or will work on shares or salary. State full proposal in first letter.
J. PROBST, Florence, N. J.

FOR SALE.—Excellent farm and bee locations in this "wonderful fruit and summerland." Rich variety of food. Improved farms, \$12.00 to \$150.00 per acre. Send for booklet.
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FOR SALE.—Apiary of 105 colonies of bees, with or without location; $\frac{3}{4}$ of an acre of ground in the edge of village, and planted to all kinds of fruit; about 40 trees are now bearing. Beeyard is enclosed with six-foot tight fence, which is lined inside with grapevines, currants, gooseberries, and blackberries. Frame shop and honey-house $1\frac{1}{2}$ story; 65-barrel cistern; corn-crib; chicken and hog yards; every thing one needs but dwelling house. This would be a fine location for a queen-breeder—not over a dozen colonies of bees within $1\frac{1}{2}$ miles of the yard. No disease, and have never had any. The bees are all in good shape; hives as good as new; combs built on Hoffman frames; wired foundation, except possibly 100 frames. I spent \$500 in fitting up my yard, not counting my labor. Land sells here from \$200 to \$400 per acre. I am nine miles below Zanesville, on the Muskingum River, overflowing creek and river bottoms west, south, and east of me. The location is No. 1; I have had but one failure in 21 years that I have kept bees; good market for honey near. My crop is sold, and not all off yet, at \$3.75 per case. Any one buying the property will get good hive-stands, what winter cases I have, shade-boards, cushions, etc. I will take \$1000 for ground and bees, and a low price for extras, or will sell the bees, to be moved, for \$500.
J. F. TRUESDELL, Duncan's Falls, O.

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White Indian Runner duck eggs. High fertility guaranteed. Running water.
OTTO WESTFELT, Halcyon, Cal.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mating-list free.
KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS, American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.
C. O. YOST, Rt. 4, Box D, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

QUIRIN's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

WHEELBARROW WHEELS.

In our notice of wheels in last issue the diameter is given 28 inches when it should read 20 inches. The error was not discovered till the edition was printed.

QUEENS.

This is the height of the breeding season with us, and we are prepared now to give exceptionally good service on orders for queens. Quantity orders filled at any time and for any number. All orders filled with the unexcelled Root strain. Queens reared from the best breeding stock, and mated in our own yards, where we carefully control drone production, insuring pure matings of young queens. Untested queens, \$1.00 each; a discount of five per cent on lots of 12 to 25; ten per cent on lots of 25 to 50; \$75.00 for 100. Two hundred for \$140.00. Three hundred for \$180.00. Safe delivery guaranteed in the United States and Canada.

SHIPPING-CASES, SECOND-HAND, NAILED UP.

We have an accumulation of second-hand shipping-cases from which comb honey has been sold or repacked. Some of them are of our own make, and practically as good as new, while more of them are western-made pine cases, somewhat rougher than our make, and not so desirable. We have tried to price them according to their value. The list available is as follows, and offered while they last:

126 cases, 10 $\frac{1}{2}$ -inch, 4-row, for 24 sections, 4 $\frac{1}{4}$ x7-to-foot or 1 $\frac{1}{4}$; \$1.20 for 10; \$5.50 for 50; \$10.00 for 100; \$12.00 for the lot.

406 cases, 11 $\frac{1}{2}$ -inch, 4-row, for 24 sections, 4 $\frac{1}{4}$ x1 $\frac{1}{2}$; \$1.20 for 10; \$5.50 for 50; \$10.00 for 100. About two-thirds of these have a wooden slide in place of glass, and will be sold at 2 cts. each less without the glass.

96 cases, 12-inch, 4-row, for 24 sections, 4 $\frac{1}{4}$ x1 $\frac{1}{2}$ to 2-inch; \$1.20 for 10; \$5.50 for 50; \$9.50 for lot.

189 cases for 24 sections, 4x5x1½; \$1.30 for 10; \$6.00 for 50; \$11.00 for 100; \$19.00 for lot.
 55 cases for 24 sections, 3½x5x1½; \$1.30 for 10; \$6.00 for lot.
 1 case for 24 sections, 4¼x4¼x1½; \$1.40 for 10; \$3.00 for lot.
 Most cases include glass. If wanted in carriers, add 5 cts. per case to cover cost of carrier.

OLD-STYLE EXTRACTORS.

We have a few extractors which we offer at bargain prices because they are not of our latest pattern. They do not have ball-bearings, die-molded gears, nor the slip-gear device. Otherwise they are new machines which sold for much higher prices than we ask for them now to close out. They are located at different branch offices, and are offered at the prices named for shipment direct from the office where they are now stored.

At Des Moines, Iowa, 4 No. 15 Cowan, L. size two-frame machines, offered at \$9.00 each, and one No. 17 Cowan with 12-inch comb-pockets, offered at \$7.00.

At Mechanic Falls, Me., 4 No. 15 Cowan, L. size two-frame machines offered at \$9.00 each, and 2 No. 4 Novice for short frames, 13 inches or less in depth, and 1¾ inches in width or less, offered at \$7.00 each.

At Syracuse, N. Y., 3 No. 15 Cowan, L. size, two-frame, offered at \$9.00 each. One No. 5 Novice, L. size, two-frame, offered at \$7.00.

At New York, one No. 17 Cowan, two-frame, with 12-inch comb-pockets, offered for \$10.00.

At Philadelphia, Pa., one No. 17 Cowan two-frame, offered for \$10.00. One No. 18 Cowan, two-frame, with 12½-inch comb-pockets, offered for \$10.50. One No. 25 Cowan four frame, L. size, offered for \$16.00.

At Washington, D. C., one No. 15 Root Automatic, L. size; price \$10.00.

SHIPPING-CASES AT BARGAIN PRICES.

We have dropped from our catalog certain sizes of shipping-cases while we still have some of them in stock. We are making changes in some other styles, and desire to close out what stock we have of older patterns. For these reasons we offer the following cases, while stock lasts, at special prices. If you do not see in the list what you want, write to us, advising the number and size wanted, and we will quote you.

16-lb. two-row cases to hold 16 sections, 4¼x1½.
 24 crates of 50 each, with two-inch glass; price \$5.00 per crate.

10 crates of 10 each; price \$1.00 per crate.
 6 crates of 50 each, with three-inch glass; price \$5.25 per crate.

12-lb. two-row cases to hold 12 sections 4¼x1½.
 26 crates of 50 each, with three-inch glass; price \$4.50 per crate.

For 12 sections 4¼x1½ or 10 sections 4¼x1½.
 10 crates of 50 each, with two-inch glass; price \$4.00 per crate.

10 crates of 50 each, with three-inch glass; price \$4.25 per crate.

12-lb. three-row cases to hold 12 sections 4¼x1½.
 52 crates of 50 each, with three-inch glass; price \$5.25 per crate.

20 crates of 50 each, with two-inch glass; \$5.00 per crate.

12-lb. three-row cases to hold 12 sections 4¼x1½.
 22 crates of 50 each, with two-inch glass; price \$4.75 per crate.

15 crates of 50 each, with three-inch glass; price \$5.00 per crate.

11 crates, 10 each, with three-inch glass; price \$1.00 per crate.

24-lb. four-row cases for 24 sections 4¼x1½, or 20 sections 4¼x1½.
 25 crates of 50 each, with three-inch glass; price \$7.50 per crate.

8 crates of 10 each, with two-inch glass; price \$1.60 per crate.

Cases for 20 sections 4x5x1½.
 7 crates of 50 each, with three-inch glass; \$6.50 per crate.

Cases for 12 sections 4x5x1½.
 14 crates of 50 each, with three-inch glass; \$5.00 per crate.

Cases for 12 sections 3½x5x1½.
 16 crates of 50 each, with three-inch glass; \$5.00 per crate.

24-lb. cases for 24 sections 4¼x1½.
 66 crates of 50 each, with two-inch glass; \$8.00 per crate.

This stock is at Medina. We also have some stock of similar cases at other offices which we will furnish at same prices, while they last, on orders specifying these prices.

SPECIAL NOTICES

A. I. ROOT

MR. HENRY WOODWORTH, JR., OF CHEBOYGAN, MICH., AND HIS BUTTERCUP CHICKENS.

The above person had an advertisement in our journal for April 15, May 1 and 15, and June 1; and he not only has failed to give satisfaction, but refuses to answer letters from his customers after he has received their money. We have written him repeatedly, but can get no reply whatever. Now, if any of our readers have lost money by this individual, we should be glad to hear from such; and if any of you have had satisfactory deal with him we should be glad to know that also.

PARCELS POST AT HOME, AS WELL AS PARCELS POST ABROAD.

With all the clamor about parcels post of late, I have not seen a word about giving the United States as good a chance as we give to almost all foreign nations. What is the reason we can not send packages to the next town as cheaply as we send them to Europe, Asia, or Africa? With the "Zone" and other schemes it is very evident that the express companies are continually getting a finger in the pie, and handicapping any thing that threatens to cut down their profits. Are the express companies really running things, or is it the working people, who are endeavoring to make a short cut between producer and consumer?

WOMAN SUFFRAGE, ETC.

Mrs. Root very seldom dictates or even suggests what I ought to say to the people. Of course, she sometimes rules out what I might say if it were not for her gentle protest. But she has just said that she was surprised that I had so little to say in regard to letting the mothers of our land, as well as other good women, have a voice in framing and enforcing our laws. *By all means* let the women vote; and after they get to voting I feel quite sure that Professor Thorne, of our Ohio Experiment Station, will not be obliged to admit that *two-thirds* if not *four-fifths* of the voters, are users of tobacco. I am sure the *mothers* will set a good example before their boys, even if the *fathers* do not always do so.

Convention Notices.

A beekeepers' meeting and picnic will be held Saturday, Sept. 7, at the home of A. F. Foster, 21st and Arapahoe Streets, Boulder, Colo. Every one interested in bees in Northern Colorado is invited. Come and get acquainted, and hear some of the best beekeepers in the country tell of their methods. Morning and afternoon sessions. Picnic lunch.

Several of the largest honey-producers of the State have arranged to club together and put up a mammoth exhibit of honey and bees in the name of the Kansas State Beekeepers' Association at Hutchinson, Sept. 14—21. On account of its central location it is planned to make this a sort of headquarters for honey exhibitors. Any one desiring space should address Mr. J. J. Measer, Sup't Apiary Department, Hutchinson, Kan.
 Topeka, Kan. O. A. KEENE, Sec.

The Kansas beekeepers will hold a meeting at Hutchinson, on Thursday, Sept. 19. Mr. C. P. Dadant will deliver an address on bees. It is hardly necessary to remind beekeepers that Mr. Dadant is one of the greatest authorities on bees that we have. This meeting will be held during the State Fair there, and all beekeepers are urged to attend. This is not the regular annual meeting of the Kansas State Beekeepers' Association. That will be held in Topeka about Jan. 15.
 Topeka, Kan., Aug. 18. O. A. KEENE, Sec.

HONEY LABELS

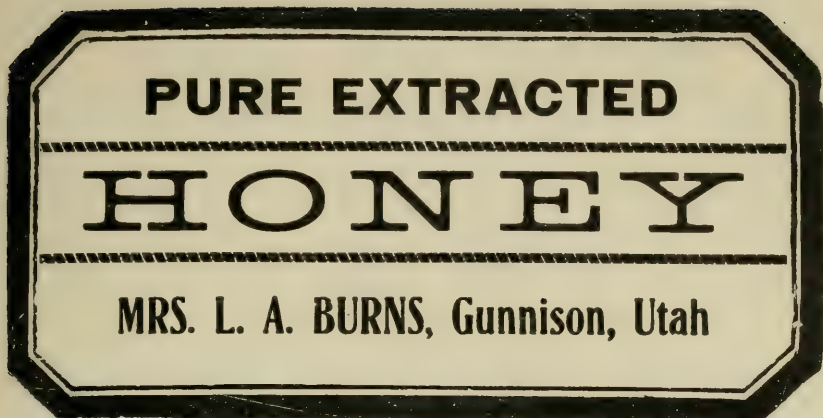
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



No. 89.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.



Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.



No. 94.—Bronze on glazed paper, 250, 90c.; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.

No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000 \$4.00.



ROOT'S BEEKEEPERS SUPPLIES



You may have a catalog of supplies; but if you haven't ours for 1912 you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Old customers are writing us frequently letters like the following:

Your catalog for 1912, designated ROOT'S BEEKEEPERS' SUPPLIES, is received, and I certainly thank you for this book. I have had your catalog on my desk for years, and have used Root's supplies all along. I note the enlargement and improvement in your new catalog, and notice many things I expect to add to my apiary.
Crystal City, Texas. C. W. Cox.

Our catalog this season also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever You Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

I have just received my goods, order No. 10739. I am more than pleased with them. I had intended to make my hives, but when I received the sample hive and saw the No. 1 pine lumber from which it was made, and considering the workmanship, I am satisfied I can buy cheaper than I can make them; enough cheaper to save the price of the lumber.
O. C. MILLS, Barton Ldg., Vt.

BRANCH OFFICES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
St. Paul, 1024 Mississippi St.

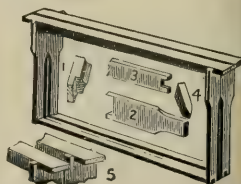
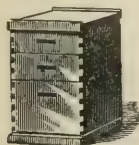
Chicago, 213-231 Institute Place
Des Moines, 565 W. Seventh St.
Syracuse, 1681 Genesee St.

Washington, 1100 Maryland Ave., S. W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



LIBRARY OF THE
MICHIGAN STATE COLLEGE
LANSING, MICH.
1912

Gleanings in Bee Culture



VOL XL. SEPT. 15, 1912, NO. 18

Take One of these Special Offers on Gleanings in Bee Culture if you want to Get More Profit and Pleasure from your Bees.

You have probably read our announcement of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1912. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers).

These Combination Offers Afford Still Greater Values.

GLEANINGS IN BEE CULTURE

(One Year)

	with the A B C and X Y Z of Bee Culture, the leading text on bee-keeping. Described on page 53	\$ <u>2.25</u>
"	with Dr. Miller's Fifty Years Among the Bees. Described on page 54	\$ <u>1.50</u>
"	with W. Z. Hutchinson's Advanced Bee Culture. Described on page 52	\$ <u>1.50</u>
"	with T. B. Terry's great book, How to Keep Well and Live Long. Page 57	\$ <u>1.50</u>
"	with Milo Hastings' book on practical poultry culture, The Dollar Hen. See page 57	\$ <u>1.50</u>
"	with the new revised edition of the A B C of Potato Culture, by T. B. Terry and A. I. Root. Page 57	\$ <u>1.00</u>
"	with your choice of any ONE of the following books from the GLEANINGS library: Townsend Bee-book, Doolittle's Year's Work in an Out-apiary, Alexander's Practical Bee Culture, Hand System of Swarm Control, Natural History of the Honey-bee	\$ <u>1.00</u>

Canadian postage on each of above combinations 30 cts. extra. Foreign post., 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON.

I enclose \$_____ for combinations checked.

Name _____

Address _____

Don't forget extra postage for Canada or foreign countries.

"falcon" QUEENS

Three-banded Italians . Caucasians . Golden Italians . Carniolans

October 1 to July 1

Untested 1, \$1.00; 6, \$5.50; 12, \$10.00
 Select Untested 1.25 6.75 12.75
 Tested, \$1.50 each; six, \$8.00; twelve, \$15.00.

July 1 to October 1

Untested 1, \$.75; 6, \$4.25; 12, \$ 8.00
 Select Untested 1.00 5.50 10.00
 Select tested, \$2.00 each; six, \$10.00; twelve, \$18.00.

We charge 10c for clipping a queen's wings. All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are printed on the reverse side of the cage cover. Virgins from good mothers, 40c. Safe arrival and satisfaction guaranteed.

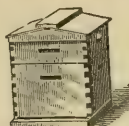
"falcon" SHIPPING-CASES "falcon"

Insure safe arrival of your comb honey, and better price, by using the best protection cases made. Get our prices of SAFETY CASES, and regular cases with corrugated pad, top and bottom, and corrugated follower. Dealers everywhere. Red catalog postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from

ORDER ON LOW MARKET



**Save 7 per cent
in September**

For September only, we will offer you the liberal discount of seven per cent on any bee supplies ordered from us. Now is the time to stock up for the coming season. Have you got those honey cans or jars yet? Don't wait too long. Ask for

BLANKE'S BEE BOOK

It describes our complete line of bee supplies, and contains much interesting and useful information on the care and management of bees. It is FREE.

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.

Providence, R. I.

Nature Education and Recreation

For Boys and Girls:

NATURE AND SCIENCE (of St. Nicholas Magazine). - Per Year, \$3.00

For Men and Women:

THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00
 \$4.00

BOTH, ONE YEAR, \$3.00; sample of either, 10c.

For Teachers:

"How Nature Study Should be Taught," (203 pgs.) - Postpaid, \$1.00

For Everybody:

"The Spirit of Nature Study," (222 pgs., illustrated) - Postpaid, \$1.00
 "Walking a Fine Art," (164 pgs., illustrated) - - - Postpaid, \$1.50
 "Three Kingdoms," the handbook of the AA - - - Postpaid, .75

For Plants:

Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

PROTECTION HIVE

The best and lowest-priced double-wall hive on the market. This hive has $\frac{1}{2}$ material in the outer wall, and is not cheaply constructed of $\frac{3}{4}$ material as are some other hives on the market. Packing or dead-air space as you prefer. Remember, winter is approaching. Get your bees into comfortable quarters before it is here. Send for a catalog.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8. Beeswax, 30.

Boston, Sept. 5.

BLAKE-LEE CO.

INDIANAPOLIS.—Extracted honey of finest quality in five-gallon cans is selling at $10\frac{1}{2}$ to 12, according to quantity. No. 1 and fancy white comb sells for 16 to 17. Beeswax is in good demand and producers are being paid 30 cts. per pound.

Indianapolis, Sept. 6.

WALTER S. POWDER.

CHICAGO.—The market for honey continues to be active, especially for the comb. We are obtaining from 17 to 18 cts. per lb. for the A No. 1 to fancy grades, and there is not enough to supply the demand. Extracted honey is not active, and sells at from 9 to 10 for the best grades of white, and 7 to 8 for the light ambers. Beeswax is steady at from 30 to 32, according to color and cleanliness.

Chicago, Sept. 3.

R. A. BURNETT & CO.

ALBANY.—Honey demand increasing as season advances. We quote white comb 15 to 16 for choice to fancy. We could make small sales at a little higher price if of fancy quality. There is a sharp demand for honey in the right kind of cartons, also for buckwheat honey, but none comes in, and we understand crop of buckwheat will be very short in this vicinity. Could sell at 13c now. Extracted quiet, 8 to 9 cts. for white clover and basswood.

Albany, Sept. 5.

H. R. WRIGHT.

CINCINNATI.—The demand for honey is good, although many of the big buyers refuse to pay last year's prices, and it is an effort on our part to sustain the prices of to-day. We are selling fancy comb honey in a small way from our store at $16\frac{1}{2}$ to 18, and in a wholesale way at a few cents a pound less, according to the quantity purchased. Strictly fancy extracted honey in crates of two 60-lb. cans we are selling at $8\frac{1}{2}$ to 10, and in barrel lots at $8\frac{1}{2}$ and sometimes 9; amber honey in barrels at 6 to $7\frac{1}{2}$. For choice bright yellow beeswax we are paying 28 cts. per lb. in cash or 30 in trade.

Cincinnati, O., Sept. 3. THE FRED W. MUTH CO.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . . YOU CAN'T APPROACH THAT FOR PROFIT. . . . We need great quantities of Comb and Extracted Honey. . . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

SPECIAL DELIVERY

We have anticipated the needs of beekeepers for prompt delivery of supplies during the month of July, and have an unusually large stock from which to draw.

The honey-flow is promising larger than most beekeepers were prepared for, but we have sections and foundation on hand ready for instant shipment, so not a single pound of honey need be lost because of insufficient room in which to store it. Sections of all the standard sizes are here in the original packages, and we can put your name on a package of any size just as soon as your order reaches us.

You will find it will pay you, too, to use foundation liberally this season. Starters are good but full sheets are better, and you can very materially increase your honey crop by giving the bees this little assistance.

We buy honey too, and you will find us ready to give you a good price for your crop, and we can assure you of fair treatment.

Whatever your needs in the beekeeping line, we can supply them promptly, and we are glad to answer questions at any time.

C. H. W. WEBER & COMPANY

2146 Central Ave., Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor.

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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Issued semi-monthly.

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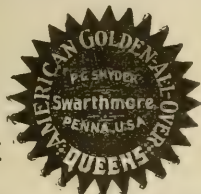
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GOLDEN
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Untested, warranted, good for black brood.

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**A sanitary, substantial, waxed-paper bottle.
Cheap enough to give away with honey.
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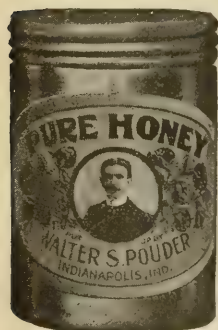
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The jars are now packed in uniform shipping-boxes containing one gross each, complete with stoppers and a stopper-inserter with each gross. Please note the very light weight when packed for shipment, a feature by which transportation by express is often as cheap as by freight.

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Tight Seal
Honey-jars**

**Improved
Pattern
Reduced
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Absolutely no leakage. No soiled labels. Desirable for granulated honey. No more rubber bands to taint the contents. Seals air-tight and prevents granulation. Handsome enough to be placed on the tea-table. A jar with no shoulders, making it easy to remove the contents. Each lid contains a wax-paper wad, and nothing could be more sanitary. The smaller jar will contain 5 ounces of honey, the middle-size 11 ounces; and the larger an exact pound. After years of experience in putting up honey for the fancy grocery trade, I have never found a jar that gives such universal satisfaction. All jars packed in corrugated shipping-boxes, which we find better and cheaper than wooden boxes. After filling with honey they can be re-shipped in same case, and the lightness of package saves freight. Breakage in transit out of the ordinary.

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This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

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Has it ever occurred to you how valuable a source of information, alike for the prospective beekeeper, the beginner, and the veteran, a modern bee-supply catalog is? A careful perusal of one of these catalogs is an education in itself.

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A full line of Root's supplies always on hand.

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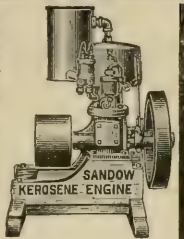
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J. B. MASON, Manager

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Town

G.B.C. 9-15-12

State.....

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We send 1¼ style 2 beeway when your order does not specify style or width wanted.

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500	2.75	2.50	35 "
1000	5.00	5.00	70 "

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We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
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250	1.60	1.40	15 "
500	2.75	2.50	30 "
1000	5.25	4.75	60 "

Price of larger quantities quoted on application.

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BY T. B. TERRY AND A. I. ROOT.

Mr. A. I. Root devoted a large part of his time during the summer of 1911 to revising the Potato Book which he wrote in collaboration with Mr. Terry 25 years ago. During the winter the 8th edition of 10,000 copies has been printed. Speaking of this valuable book, and of Mr. Terry, Mr. Root recently had to say:—"It will pay almost every man, woman, and child to read Terry's potato-book, no matter whether you ever did or ever will grow any potatoes or not. If you have read Terry's recent book, 'How to Keep Well and Live Long,' you will know that he is a student of nature, and a deliverer after God's gifts and God's secrets; and this potato-book, on every page, shows his remarkable gift. He is a philosopher of modern date; and his love for God's gifts, as well as his love for his fellow-men, shines out on every page. His studies of potatoes, it occurs to me, paved the way in his explorations in his later work in regard to how we should live, and keep our health." Contains nearly 400 pages, well illustrated, paper bound, 57c each postpaid. Cloth bound, 85c each, postpaid. (Deduct 7c if ordered sent with freight or express shipment.

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BY T. B. TERRY.

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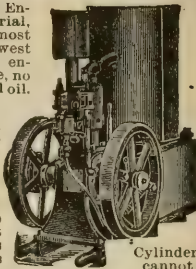
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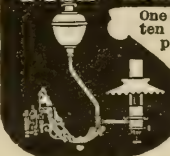
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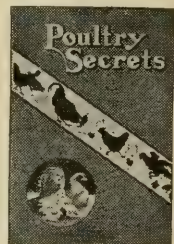
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Because of ideal weather and continuous honey flow at this date my nuclei are full, cells hatching and still grafting. Now is your chance to requeen your entire apiary with hardy, prolific stock—Doolittle-Moore strain. Untested queens, 60 cts. each; 12 for \$6.50; 25 for \$12.50; tested, \$10 for 12. Satisfaction or money back. J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Three apiaries, about 240 colonies Italians and hybrids, run for extracted; three honey-houses, three four-frame extractors, etc.; 10-frame Langstroth hives, well built and tarred and painted; plenty of supers and spare stores. Average crop for four years; 80 lbs. per hive; reason for selling, occupation necessitates owner living in another district, and crop decreasing under hired help. No diseases and no wintering in St. Lucia. \$2400. J. WARD DENNERY, Valle Apiaries, St. Lucia, B. W. I.

FOR SALE.—My apiary of 60 stands of bees, 8-frame hives, 80 half-depth supers on with honey-crop of this season, half for extracting, half comb honey, to go with the bees. Also 25 1½-story hives for comb honey, no bees in them; 8 frames complete set up, painted, but never used; also one dozen older hives, no bees in them, 8 frames, but still in good condition; one Cowan two-frame extractor, and other things belonging to the business. Will take 200 dollars for all, taken on the stand. Reason for selling, failure of health, old age, and no help. Bees can be left until winter. JACOB RUCH, Gruetli, Grundy Co., Tenn.

FOR SALE.—North Carolina bred Italian queens, bred up for business; none better for honey-gathering; good recommendations coming in almost every day. I have Root's and Moore's strain, Davis', Quirin's, Laws', and choice imported breeders, to get my fine honey-gathering strain from. I breed all queens in full two-story colonies running over with bees at all times. I don't keep any thing but the red clover and the Goldens in my yards. Try them and see for yourself. Untested, 75 cts.; doz., \$7.00; tested, \$1.25; select tested, \$1.50. Extra select tested, \$2.00. Select breeders, \$3.00. Extra select, \$5.00.

H. B. MURRAY, Liberty, N. C.

WANTS AND EXCHANGES

WANTED.—To exchange Root bee supplies, either for money or honey. Catalog.

E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Partner. Will sell half interest in \$1500 worth of bees and supplies. All combs on full sheets of foundation. No disease. Have always returned good income. Desire to move to new land in Wisconsin. Splendid opportunity for man of good clean character.

GLEANINGS IN BEE CULTURE. 60362.

HELP WANTED

WANTED.—At once, one or two more helpers for the rest of the season.

F. B. CAVANAGH, Hebron, Ind.

WANTED.—Four or five helpers to assist me in a large house-to-house honey-selling business. A rare chance to learn a business that will pay a fancy income.

JOHN C. BULL, Rt. 8, Valparaiso, Ind.

MISCELLANEOUS

FOR SALE.—New \$25.00 camera and outfit for \$15.00, postal size.

OTTO HUND, Rt. 1, Box 58, Marine City, Mich.

PIGEONS! PIGEONS! Thousands, all breeds; many satisfied customers everywhere; start with our money-making pigeons. Large free illustrated matter.

PROV. SQUAB CO., Providence, R. I.

REAL ESTATE

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.

ERNEST W. FOX, Clint, Texas.

FOR SALE.—A clean established apiary, located near river and railroad depot in this city. A bargain.

H. C. ADLER, Victoria, Texas.

\$5000 buys my fine quarter section located in the great grain district of Saskatchewan, Can.

D. E. LHOMMEDIEU, Colo, Iowa.

FOR SALE.—Farm of 90 acres in Ulster Co., New York. Well suited for bees, poultry, fruit, and dairy; $\frac{1}{4}$ mile from creamery and depot. Particulars gladly given. Price \$4000—\$2500 cash.

STEPHEN R. CHRISTOPHER,
West New Brighton, N. Y.

FOR SALE.—My residence property in the village of Hart, consisting of 8 acres, good buildings, a few steps from postoffice and courthouse; one of the finest school buildings in Northern Michigan, in the great fruit belt; also my apiary, consisting of 35 colonies in good shape; 8-frame hives; L. frames, with all surplus arrangements for both comb and extracted; in fact, have the business complete. Reason for selling, old age; have kept bees 50 years, 46 years right here. Will sell bees alone if wanted. W. D. MARKHAM, Hart, Mich.

FOR SALE.—27 acres, some very good land, about 3 or 4 acres timber. Good bee location for queen rearing and honey; 50 colonies Italians, house, 3 rooms, 3 new porches just finished. Barn room for one horse and cow; good smokehouse; fine fish pond stocked with good fish under same fence as apiary. Black locust, poplar, and basswood, are my main honey source. Good well drilled at kitchen door. Several other things such as farming tools, all for \$2500 if taken before Nov. 1st, 1912.

CURD WALKER, Queen-breeder,
Rt. 1, Box 18, Jellico, Tenn.

FOR SALE.—Apiary of 105 colonies of bees, with or without location, $\frac{1}{4}$ of an acre of ground in the edge of village, and planted to all kinds of fruit; about 40 trees are now bearing. Beeyard is enclosed with six-foot tight fence, which is lined inside with grapevines, currants, gooseberries, and blackberries. Frame shop and honey-house 1 $\frac{1}{2}$ story; 65-barrel cistern; corn-crib; chicken and hog yards; every thing one needs but dwelling house. This would be a fine location for a queen-breeder—not over a dozen colonies of bees within 1 $\frac{1}{2}$ miles of the yard. No disease, and have never had any. The bees are all in good shape; hives as good as new; combs built on Hoffman frames; wired foundation, except possibly 100 frames. I spent \$500 in fitting up my yard, not counting my labor. Land sells here from \$200 to \$400 per acre. I am nine miles below Zanesville, on the Muskingum River, overflowing creek and river bottoms west, south, and east of me. The location is No. 1; I have had but one failure in 21 years that I have kept bees; good market for honey near. My crop is sold, and not all off yet, at \$3.75 per case. Any one buying the property will get good hive-stands, what winter cases I have, shade-boards, cushions, etc. I will take \$1000 for ground and bees, and a low price for extras, or will sell the bees, to be moved, for \$500. J. F. TRUESDELL, Duncan's Falls, O.

INDIAN RUNNER DUCKS

White Indian Runner duck eggs. High fertility guaranteed. Running water.

OTTO WESTFELT, Halcyon, Cal.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$1.00 per 100. Day-old ducklings, 25 cts. each. Mailing-list free.

KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS, American Standard light fawn, and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.

C. O. YOST, Rt. 4, Box D, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE QUEEN-BREEDER, Bellevue, O.

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits, are far better and more prolific than the ones hatched from a natural swarm or supersedure cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us for booklets describing our method. Untested queens, 75 cts.; dozen, \$8.00.

DRS. WALLIN & CORLIS, Brooksville, Ky.

Honey Reports continued from page 2.

BUFFALO.—The demand for honey is still very slow here. Receipts are light, and still there is plenty for the demand. We quote No. 1 to fancy white-clover comb at 16 to 17, and in good-sized lots this would be shaded from one to two cents to effect sales.

Buffalo, N. Y., Sept. 7. W. C. TOWNSEND.

ZANESVILLE.—Honey is moving a little more briskly. The jobbing trade is still understocked, and now is a favorable time for producers to sell their crop; 15 to 16 cents is being offered producers for No. 1 and fancy white-clover comb, and 8 to 8½ for best white extracted. Prices to the trade grade from 19 down, on comb, according to quality and quantity. Producers are offered 28 cents cash, 30 in trade, for beeswax of good quality.

Zanesville, O., Sept. 5. E. W. PEIRCE.

NEW YORK.—There is a good demand for new comb honey, and shipments are now arriving more freely and in larger quantities. We quote fancy white, 15; and in some cases it will bring 16; No. 1 white, 14; No. 2 white, 13. No buckwheat is on the market as yet, but we should think it would sell on arrival at about 10 to 11. There is no change in the market as to extracted, prices remaining the same as in our last quotation, with sufficient supplies. Beeswax is steady at 30.

New York, Sept. 5. HILDRETH & SEGELEN.

LIVERPOOL.—Since we last reported to you our honey market has continued quiet; 25 barrels Chilian have been sold at \$6.84 for pile 2, and 20 casks unstrained Jamaica at \$6.00; \$5.76 has been refused for 53 barrels Peruvian (manufacturing quality); sellers ask \$6.00. We are sorry the demand for white and fine sorts is so poor; but sellers of Chilian, pile X and 1, are not getting on, and we think the demand is only a question of time. Some 50 cases Californian sold at \$11.16 for fine, \$9.60 to \$11.16 quoted. Jamaica honey is slow, and there are no sales of importance beyond that mentioned above. Other descriptions are quoted as follows: Haitien, \$5.76 to \$7.20; Peruvian, \$3.84 to \$4.80; Chilian, \$5.52 to \$8.16; Jamaican, \$6.24 to \$7.68; Californian, \$9.60 to \$10.92. Beeswax, market is steady. Arrivals of Chilian just in will test our market. Sales of Gambia at \$24.48, and Sierra Leone at \$33.54. Other descriptions are quoted as follows: African, \$32.16 to \$34.48; Jamaican, \$37.72; West Indies, \$32.64 to \$36.28.

Liverpool, Aug. 21.

TAYLOR & Co.

Convention Notices.

BEEKEEPERS OF OKLAHOMA, ATTENTION.

Please place the date of Tuesday evening, Oct. 1, in your minds in such a position that it will not be forgotten. At that time in the apiary building at the State fair grounds in Oklahoma City there will be a meeting that all should attend.

Some work looking to the interests of the industry has been done, but more is needed. We must have the support of those interested, to accomplish more. We have not been getting the support necessary. If you have not been seeing the display of Oklahoma honey shown at this fair you have no idea of its magnificence. It will likely be as good this year, or better, than ever before. It has been the practice of the fair management to throw the grounds open in the evening, and admission is free. I presume this will be done this year. Come and treat yourself to the sight of a fine honey display, and at the same time give encouragement to the industry in which you are interested. It is hoped to present a program of more than usual interest.

M. FRED GARDINER, President.

SPECIAL NOTICES

A. I. ROOT

THE CONVERGENT EGG-FARM, ETC.; SEE POULTRY DEPARTMENT IN THIS ISSUE.

On page 603 I mention the convergent dairy barn; but I did not say that I had submitted to the Cleveland architects my plan for a convergent egg-farm as given in our issue for July 1. Well, the letter below indicates what they think of it:

BRIGGS & NELSON, Architects,
669 Rose Building.

Cleveland, Sept. 6.

Mr. A. I. Root:—I beg to thank you for the two copies of your journal giving a description and cuts of the poultry-house and yards which you have worked out. The principle involved is identical with that being used in the dairy barn which we are planning. It is certainly interesting to feel that you have worked out a plan so similar to the circular-dairy-barn plan without having seen plans of the latter building.

Very respectfully yours,

HERBERT B. BRIGGS.

My opinion is that, a little later on, some of our many poultry journals may think best to "sit up and take notice" of the convergent egg-farm. See our Poultry Department for July 1.

SEED CORN FOR PLANTING NEXT YEAR; NOW IS THE TIME TO GATHER IT.

"Whatsoever a man soweth, that shall he also reap." If he plants poor seed corn he will have missing hills or worse than that. He may go through the motions necessary to raise a crop, and lose a great part of his labor as well as a part of his land by having missing hills. Our attention is called to this matter by two very valuable articles in the *Successful Farmer*, of Des Moines, Ia., for September. One of the articles is entitled "The Significance of the Missing Hills." The other is a "seed-corn symposium." And there is still another article entitled "Our Junior Farmers' Department." It tells the boys on the farm just how to go to work to pick out the seed corn and how to keep it so it will be sure to grow. *Successful Farming* is only 25 cents a year; but these articles I have mentioned are easily worth ten times that much.

Just now we have here a beautiful field of corn with great handsome ears bending over the stalks by their weight. We have for several years selected our seed corn in the fall, and dried and preserved it in a basement where there is steam heat. Well, for many years we have been in the habit of planting white beans in the missing hills, or where there was only one stalk in a hill. Last spring we did not plant any beans in that particular field because there were no missing hills, or almost none at all, and hardly any containing only one stalk. Another thing, when you find a farmer so careful and thorough in all his work that he picks out his ears to plant at just the proper time, and then tests every ear before planting in the spring, etc., you will find this farmer looks after his interests in a like manner all over his farm; and he is the farmer who has an automobile to get around and enjoy life in an up-to-date way. Are you one of that sort?

HONEY LABELS

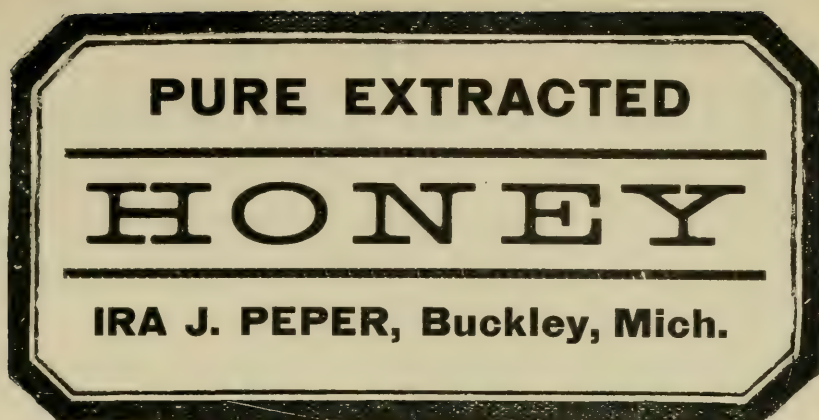
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

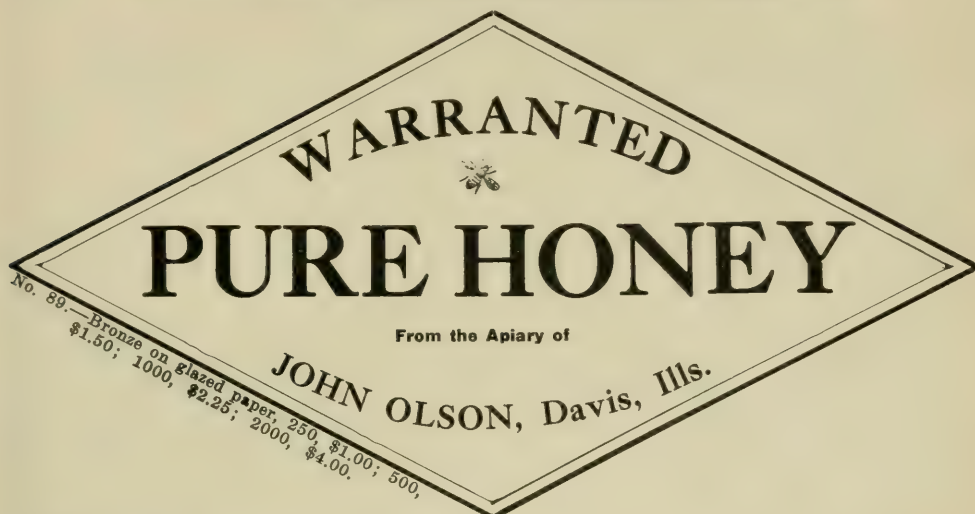
We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



No. 89.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.



Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.

No. 94.—Bronze on glazed paper, 250, 90c.; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.



No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000 \$4.00.

SUBURBAN LIFE MAGAZINE

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Sept., Oct., Nov., Dec., 1912

50 CENTS

This end of the year offer is made to interest new readers. . . . It includes four of the best issues of the year.

Annual House Building Number
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SUBURBAN LIFE MAGAZINE is a typical "Countryside Magazine." Send 50 cents to-day in stamps, coin, or money order to

THE SUBURBAN PRESS, PUBLISHERS

334 Fourth Avenue, New York City

Gleanings in Bee Culture



VOL. XLII OCT. 1, 1912 NO. 19.

Take One of these Special Offers on Gleanings in Bee Culture if you want to Get More Profit and Pleasure from your Bees.

You have probably read our announcement of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1912. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers).

These Combination Offers Afford Still Greater Values.

GLEANINGS IN BEE CULTURE

(One Year)

	{ with the A B C and X Y Z of Bee Culture, the leading text on bee-keeping. Described on page 53 }	\$2.<u>25</u>
“	{ with Dr. Miller's Fifty Years Among the Bees. Described on page 54 }	\$1.<u>50</u>
“	{ with W. Z. Hutchinson's Advanced Bee Culture. Described on page 52 }	\$1 <u>50</u>
“	{ with T. B. Terry's great book, How to Keep Well and Live Long. Page 57 }	\$1 <u>50</u>
“	{ with Milo Hastings' book on practical poultry culture, The Dollar Hen. See page 57 }	\$1 <u>50</u>
“	{ with the new revised edition of the A B C of Potato Culture, by T. B. Terry and A. I. Root. Page 57 }	\$1.<u>00</u>
“	{ with your choice of any ONE of the following books from the GLEANINGS library: Townsend Bee-book, Doolittle's Year's Work in an Out-apiary, Alexander's Practical Bee Culture, Hand System of Swarm Control, Natural History of the Honey-bee }	\$1.<u>00</u>

Canadian postage on each of above combinations 80 cts. extra. Foreign post., 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON.

I enclose \$_____ for combinations checked.

Name _____

Address _____

Don't forget **extra postage** for Canada or foreign countries.

"falcon" QUEENS

Three-banded Italians . Caucasians . Golden Italians . Carniolans

October 1 to July 1

Untested 1, \$1.00; 6, \$5.50; 12, \$10.00
 Select Untested 1.25 6.75 12.75
 Tested, \$1.50 each; six, \$8.00; twelve, \$15.00.

July 1 to October 1

Untested 1, \$.75; 6, \$4.25; 12, \$ 8.00
 Select Untested 1.00 5.50 10.00
 Select tested, \$2.00 each; six, \$10.00; twelve, \$18.00.

We charge 10c for clipping a queen's wings. All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are printed on the reverse side of the cage cover. Virgins from good mothers, 40c. Safe arrival and satisfaction guaranteed.

"falcon" SHIPPING-CASES "falcon"

Insure safe arrival of your comb honey, and better price, by using the best protection cases made. Get our prices of SAFETY CASES, and regular cases with corrugated pad, top and bottom, and corrugated follower. Dealers everywhere. Red catalog postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from

ORDER ON LOW MARKET



**Save 6 per cent
in October**

For October only, we will offer you the liberal discount of six per cent on any bee supplies ordered from us. Now is the time to stock up for the coming season. Have you got those honey cans or jars yet? Don't wait too long. Ask for

BLANKE'S BEE BOOK

It describes our complete line of bee supplies, and contains much interesting and useful information on the care and management of bees. It is FREE.

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

Nature Education and Recreation

For Boys and Girls:

NATURE AND SCIENCE (of St. Nicholas Magazine). - Per Year, \$3.00

For Men and Women:

THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00
\$4.00

BOTH, ONE YEAR, \$3.00; sample of either, 10c.

For Teachers:

"How Nature Study Should be Taught," (203 pgs.) - Postpaid, \$1.00

For Everybody:

"The Spirit of Nature Study," (222 pgs., illustrated) - Postpaid, \$1.00
 "Walking: a Fine Art," (184 pgs., illustrated) - - - Postpaid, \$1.50
 "Three Kingdoms," the handbook of the AA - - - Postpaid, .75

For Plants:

Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

PROTECTION HIVE

The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply constructed of $\frac{1}{2}$ material as are some other hives on the market. Packing or dead-air space as you prefer. Remember, winter is approaching. Get your bees into comfortable quarters before it is here. Send for a catalog.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices of which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing in the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8. Beeswax, 30.

Boston, Sept. 20.

BLAKE-LEE CO.

COLUMBUS.—We quote fancy white comb, 17; No. 1 white comb, 16½; No. 2 white comb, 15. The demand is good, and receipts light.

THE EVANS & TURNER CO.

Columbus, O., Sept. 19.

INDIANAPOLIS.—Extracted honey of finest quality in five-gallon cans is selling at 10½ to 12, according to quantity. No. 1 and fancy white comb sells for 16 to 17. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Sept. 20.

WALTER S. POWDER.

KANSAS CITY.—Receipts of both comb and extracted honey are still light. The demand for comb is good. We quote No. 1 white comb, 24 sections, \$3.50; No. 2 white comb, ditto, \$3.25; No. 1 amber, ditto, \$3.25; No. 2 amber, ditto, \$3.00; extracted white, per lb., 8 to 8½; extracted amber, 6 to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Sept. 18.

ZANESVILLE.—Honey is moving a little more briskly. The jobbing trade is still understocked, and now is a favorable time for producers to sell their crop; 15 to 16 cents is being offered producers for No. 1 and fancy white-clover comb, and 8 to 8½ for best white extracted. Prices to the trade grade from 19 down, on comb, according to quality and quantity. Producers are offered 28 cents cash, 30 in trade, for beeswax of good quality.

Zanesville, O., Sept. 20.

E. W. PEIRCE.

SCHENECTADY.—The honey market is in good condition. Receipts are liberal, and demand good. The average quality is only fair, but good enough for a majority of the trade. We have not yet received any fancy white clover; some good buckwheat, but the latter is reported a short crop in this section. We quote fancy white clover, 16 to 18; No. 1, 14 to 15; No. 2, 12 to 13; mixed, 11 to 12; buckwheat, 11 to 13; extracted white, 8 to 9; dark, 7 to 8.

Schenectady, Sept. 17.

CHAS. MCCULLOCH.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Man"

51 Walnut Street

Cincinnati, Ohio

The Best Time to Buy Supplies

The season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow **BEFORE** it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—six per cent for cash orders sent in October, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor.

A. I. ROOT

Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice: otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Honey for Sale by the National Beekeepers' Ass'n

Beginning this month, we are arranging a card record of every member of our Association who has honey for sale. This record will tell the amount of honey he has, what kind, how put up, and the price f. o. b. his station. Buyers who are in need of honey, whether in ton or car lots, will do well to write us, stating their wants. We will then refer you direct to the beekeeper having what you want, and the deal will be made direct between you and him.

No Charge for This Information

Not one cent will be charged you for this. Our object is to widen the distribution of honey, bring buyer and producer closer together, place each particular kind of honey in the market that demands it, and thus assist the producer in getting a better price.

Other Benefits

We have furnished our members this year with standard tin packages for extracted honey. Hundreds of dollars' worth have been sold, and buyers are coming back for their second and third orders. This tells you the satisfaction they are giving. Are also handling glass packages.

The Beekeepers' Review

This is now the official organ of the Association. Send in \$1.00 now, and get the November and December numbers free. The dollar will apply on your 1913 subscription. When you get the Review, look up the list of branches and send 50 cts. to the nearest branch. This total of \$1.50 will entitle you to full National and branch benefits, together with a subscription to the Review to the end of 1913. We now have 23 National branches, in almost as many different States. Let us help YOU sell your honey.

Address The National Beekeepers' Association

E. B. Tyrrell, Sec., 230 Woodland Ave., DETROIT, MICH.

Honey Reports continued from page 2.

CINCINNATI.—The market on comb honey is quiet, and there is not very much demand. This we owe to the hot weather for this time of the year and the large fruit crop. For No. 1 white comb honey in a wholesale way we are getting 15½ cents. There is no demand for off-grade comb honey. The demand for extracted is fair, white selling at 9½ in 60-pound cans; light amber in 60-pound cans is selling at 8 cents. Beeswax, fair demand at \$33.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, Sept. 17. C. H. W. WEBER & Co.

CHICAGO.—Comb honey is beginning to accumulate. The demand of late has not taken receipts upon arrival, yet the quality of the honey is so much superior to that of last season that we look for a much larger volume of business. Prices still range from 17 to 18 for the No. 1 to fancy. Other grades from 1 to 3 cts. per lb. less. Extracted honey is selling chiefly at 8 to 9 for the white grades, it now being difficult to obtain 10 cts. for the clover; but the fine lindens are still bringing that price. Beeswax remains unchanged at from 30 to 32, according to color and cleanliness.

Chicago, Sept. 17. R. A. BURNETT & Co.

NEW YORK.—Comb honey is now arriving right along, with a fair demand for all grades at unchanged prices. The season for buckwheat being late this year, there is none on the market yet to speak of. From the reports we are receiving from producers there will be a rather light crop; however, the demand for buckwheat comb honey being limited we do not think that higher prices will rule than from 10 to 12 cts., according to quality. Extracted is in fair demand for all grades at unchanged prices.

New York, Sept. 17. HILDRETH & SEGELKEN.

ST. LOUIS.—The receipts of comb honey are still small, and of irregular quality; but we understand that several carloads of comb honey are on the way from California and Colorado, and same are offered, to arrive, at \$3.75 to \$3.80 per case for the best grade; No. 2 honey sells at 25 to 50 cents per case less, cases weighing not less than 22 pounds net. Lighter weight honey generally sells by the pound at 15 to 16 cents for white, and 14 to 15 for light-amber color. Dark and inferior honey is not in demand, and is sold at considerably less. The demand keeps up on extracted honey, and is quotable at 7 cents for light amber, in barrels and half-barrels, and 7½ cents in five-gallon cans. There is no white clover or California amber honey offered on this market at present. Beeswax is in good demand at 29 cents for prime. Inferior and impure less.

R. HARTMANN PRODUCE Co.

St. Louis, Mo., Sept. 11.

Opening Accounts by Mail

To open an account and transact business with this bank without a personal visit to our banking rooms is a simple matter. Send your remittance in the shape of check, draft, money order, or currency in a registered letter. State the name in which you wish the account opened and we will send you a pass book by return mail.

We shall be pleased to give further particulars upon request.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS

A. T. SPITZER, Pres.

E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier

The Bank that Pays 4 per cent

ALBANY.—The honey market is quiet, there being only white grades on hand, and we have to ask more for them than buyers like to pay. There being no buckwheat honey, it would seem we should be able to get better price for the white grade; but as the two kinds go to different classes of trade, those who have a demand for buckwheat which we could use at 13 cts. can not pay 15 to 16 that we ought to get for the white grades. Extracted is quiet; principal demand is for white grade at 8 to 8½. Buckwheat, 7 to 7½. Beeswax, 30 to 32.

Albany, N. Y., Sept. 19.

H. R. WRIGHT.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to the inch.
SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.
 Preferred position, inside pages, 30 per cent additional.
 Preferred position, inside cover, 50 per cent additional.
 Outside cover page, double price.
 Reading notices, 50 per cent additional.
 Cash-in-advance discount, 5 per cent.
 Cash discount if paid in ten days, 2 per cent.
 Bills payable monthly.
 No medical or objectionable advertising accepted.
 Column width, 2½ inches.
 Column length, 8 inches.
 Columns to page, 2 (regular magazine page).
 Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, O.

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WANTED

NEW CROP HONEY Both Comb & Extracted

Are you looking for a market? New York is as good as any. We handle on commission and buy outright. Write us before disposing of your honey.

HILDRETH & SEGELKEN
265 Greenwich St., New York

6 Per Cent

discount for cash orders received in October.

Get ready for 1913 with Root's goods. Quotations furnished showing the net cost on your list of goods.

M. H. HUNT & SON,
Lansing, Mich.

Opp. Lake Shore Depot.

Queens--Queens

Warranted three-banded Italian queens, 75 cts. each; \$4.25 per 6; \$8.00 per dozen. If these queens fail to give satisfaction you can have your money back.

L. H. ROBEY

WORTHINGTON, . . . WEST VIRGINIA

GOLDEN ITALIAN QUEENS

75 cts. each; six for \$4.50; twelve for \$8.00. Untested, warranted, good for black brood.

J. B. CASE, PORT ORANGE, FLA.



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
BEEKEEPERS' SUPPLIES

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the beekeeper. Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MO.

Boston New England

Bee-keepers should bear this in mind when ordering their supplies. . . A full line of supplies always in stock. . . . Send for catalog.

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments solicited. Established 1875.

PATENTS

**25
YEARS'
PRACTICE**

CHAS. J. WILLIAMSON, McLachlen Building, Corner Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

LEARN BEEKEEPING from the Beginning

"First Lessons In Beekeeping" and the . . . **\$1.00**
American Bee Journal, one year, Both for Only

"First Lessons In Beekeeping" is a 190-page book telling all that the beginner need know. . . . It has an attractive paper cover, and many illustrations.

"Doolittle's Scientific Queen-rearing," and the **\$1.00**
American Bee Journal, one year, Both for Only

Doolittle's "Scientific Queen-rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen bees in perfect accord with Nature's way. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

The beginner will want "First Lessons;" the older beekeeper should have "Scientific Queen-rearing." You will not regret it if you send your \$1.00 now and get either one of these books with the JOURNAL, as the JOURNAL itself is worth more than the total cost.

AMERICAN BEE JOURNAL, . . . HAMILTON, ILLINOIS

"If goods are wanted quick, send to Pouder."



Please Consider This

I have a business proposition to make you which will be mutual and profitable. If you will place your orders for Bee Supplies early I can save money for you; and what I can save in this way I am more than glad to turn over to you, because it gives us employment during the dull season and relieves us during the rush season, and there will be no complaints, no delays, and no disappointments, and you may as well save the money. In ordering Bee Supplies during October you may deduct six per cent. This discount will decline one per cent per month. You will readily understand the convenience of securing your supplies early, and then having the opportunity of assembling them at your convenience. To be available, the order must be accompanied with remittance. The goods offered are the Root quality, and I do not know of any displeased patrons; but I am fortunate in having hundreds of letters commending the goods and my method of handling the business.

Ladoga, Ind., Aug. 6, 1912.

Walter S. Pouder, Indianapolis, Ind.

This honey is the finest that I have ever received—even finer than your previous shipment. From experience in buying from different houses I have learned to come to you when I want the best in honey or bee supplies. I find that you give better goods and better service than any other house in the country.

GEORGE L. HAVENS.

South Barre, Vt., Aug. 24, 1912.

Walter S. Pouder, Indianapolis, Ind.

Your paper honey-jars are perfection for local trade.

GEORGE E. MORRIS.

If you are in need of more honey for your local demands I am prepared to supply you promptly with very finest quality.

If my catalog has been misplaced, write me and another will be sent.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

The season for honey is drawing to a close and you will now be in need of **SHIPPING - CASES**

We carry them in stock at Syracuse, N. Y., and can make prompt shipment, having just purchased a motor truck for delivering goods to the railroads. We have heretofore depended on a truckman, who did not always happen to be on hand.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

SIX PER CENT DISCOUNT FOR OCTOBER CASH ORDERS

To those who buy now for next season, sending remittance with the order during the month of October subject to the conditions named below, we allow 6 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order, the discount may be deducted from the whole order, including these items which are otherwise excepted.

THE A. I. ROOT CO., MEDINA, O.

A Business Proposition.

Your money in the savings bank is drawing 3 per cent, or at most 4 per cent interest. Here is an opportunity to invest it at 12 per cent—8 per cent more than it is now earning.

In most localities this has been a good season for honey and for making increase. Prospects were never better than for the coming season, and you are almost certain to be needing supplies in the spring. If you wait until the first of April or later, you must pay full catalog prices. If your order and remittance are sent in during October, a discount of 6 per cent will be allowed. Six per cent on money invested for six months is equivalent to 12 per cent per annum, figured for six months' time. It looks good, doesn't it? Why not effect this saving by ordering now, and thus also secure the peace of mind that will result from having your supplies all ready when you need them most? Your order can be sent in now, and the goods will be shipped at any time to suit your convenience.

Best goods, best service, best treatment, are insured by sending your orders to OHIO'S BEE-SUPPLY CENTER—special headquarters for beekeepers in Ohio, West Virginia, and Western Pennsylvania. If you haven't a catalog, ask for it.

EDMUND W. PEIRCE
136 West Main St., Zanesville, Ohio

Early- Order Discounts

For years we have followed the example of the factory, and allowed our customers the benefit of the discounts offered by the Root Company for orders placed during the fall months for supplies for use the following season. This discount for October is six per cent for cash with orders, and diminishes one per cent per month as the season advances. We are sure many of our beekeeping friends will want to take advantage of this discount, not only because of the actual cash saving, but because of the convenience of getting goods before the rush of the busy season.

The Goods We Handle

We have said so much about the quality of Root's goods, and they are already so well known by beekeepers, that it hardly seems necessary even to mention the fact, except to remind you that we carry always a full and complete stock of Root's goods only. If you have tried others and they haven't given just the satisfaction they should, send us a trial order this season. For quality of material and accuracy of workmanship you will find them unexcelled.

Our Service

Each season we aim to make some improvement in the service we can give our customers. We aim to keep our stocks always complete, and to allow no order, large or small, to drag through our establishment. The shipping facilities at our command enable us to get goods started to you by direct routes at once. Whether your order is large or small it will have the most careful attention at our hands from the time it reaches us until the goods are in your hands.

Full information on any point regarding beekeeping in the Southwest cheerfully given on request.

Toepperwein & Mayfield

Corner Nolan and Cherry Streets
San Antonio, Texas

QUEENS

and bees—an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices for rest of season	1	6	12
Select queens	\$ 75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	

Queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 yrs. a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

Queen-breeder,

J. P. MOORE,
Route 1, MORGAN, KY.

THE ABC OF BEE CULTURE

The only cyclopedia on bees, 536 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$1.50 postpaid; money refunded if unsatisfactory. Catalog of supplies and sample copy of our semi-monthly magazine, *Gleanings in Bee Culture*, free if you mention this paper.

Gleanings in Bee Culture, Medina, Ohio.



FINE ITALIAN QUEENS BY RETURN MAIL

3 and 5 banded, only 75c; extra fine, \$1.00; 200 stands Italian bees at a bargain.

J. L. FAJEN, . . . STOVER, MISSOURI

300 TESTED RED-CLOVER AND GOLDEN QUEENS,
50 cts. each, after October 1.

EVANSVILLE BEE AND HONEY CO., Evansville, Ind.

PUBLICATIONS ON BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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Name

Street Address or R. F. D.....

Town

G.B.C. 10-1-12 State

CONTAINERS

. . . FOR . . .

Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . . Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

Get full information,
prices, and samples.

The A. I. Root Company
Medina, Ohio

How to Keep Bees

By
Anna Botsford Comstock

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood.

Price \$1.10 postpaid by

The A. I. Root Co.
Medina, Ohio

If BEES Could TALK

They would say

"GIVE US DADANT'S FOUNDATION

It's Clean, it's Pure, it's Fragrant. It's just like the Comb we make Ourselves."

If you are not using "DADANT'S FOUNDATION" drop us a card and we will give you prices or tell you where you can get it near you.

DADANT & SONS

Agents Everywhere.

Hamilton, Illinois

The Range With a Reputation

The Economy of A New Range

It is a mistaken idea of economy to try to get along—to attempt to get results with an old worn out range or cook stove—merely to save the price of a new one. You can probably stick a knife blade anywhere in the seams of your worn out range where the bolts are loose

and the stove putty has crumbled away and you're burning **twice** the fuel necessary. You can save the price of a **Great Majestic** in the saving of fuel alone—and that would be good management and real economy. Don't trust wholly to a printed description in buying a range, because a very glowing description can be given of a very ordinary range. If you are considering a new range, it will pay you, before investing your money in any range to go to some dealer who handles them and carefully compare, point for point, with any other—the

Great Majestic

Malleable and Charcoal Iron Range

A Perfect Baker—Fuel Saver—Outwears Three Ordinary Ranges

ONLY range made of malleable iron and charcoal iron. Charcoal iron won't rust like steel—malleable iron can't break. Put together with rivets—joints and seams absolutely air-tight always. Oven lined with guaranteed pure asbestos board, covered with an iron grate—you can see it—insuring a dependable baking heat with half the fuel required in ordinary ranges.

All Copper Movable Reservoir—Other Exclusive Features

Reservoir is in direct contact with fire, heats through pocket stamped from one piece of copper—patented feature only in **Majestic**. Oven Thermometer—open end ash pan—ventilated ash pit—ash cup. Sold by dealers in nearly every county in 40 states. Write for our booklet, "Range Comparison."

Majestic Mfg. Co., Aluminum Top Reservoir
Dept 4, St. Louis, Mo.

It Should Be In Your Kitchen

One of
the
400

Cash
or
Credit

\$5 to
\$40
Saved



Brilliant
Oak Heater

A Kalamazoo
Trade Mark Registered **Direct to You**

And
Gas
Stoves
Too

Shipped Same Day Order is Received

It is not only the saving of money that has given us 200,000 delighted customers. It's the greater beauty, convenience, fuel economy and durability of every Kalamazoo Stove or Range. Also our prompt delivery and liberal treatment.

Write for Catalog of 400 Stoves and 30 Days' Free Trial

Don't pay the middleman \$5.00 to \$40.00 extra. Let us save you that much. Return a Kalamazoo after a year's use if our claims are not true. What dealer will do that? Send postal now for Catalog No. 416, and please mention this paper.

Kalamazoo Stove Co., Manufacturers, Kalamazoo, Mich.

Ask for Furnace or Gas Stove Book too, if interested.



RHODES DOUBLE CUT PRUNING SHEAR

Pat'd June 2, 1903.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

HOW TO GET BETTER LIGHT

From KEROSENE (Coal Oil)

Tests by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle Lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Guaranteed. Better light than gas or electric. To introduce the Aladdin we'll send a sample lamp on →

AGENTS WANTED

Experience unnecessary. Every home needs this lamp. One agent sold over 1000 on money back guarantee, not one returned. Another sold \$300 worth in 15 days. Evenings made profitable. Ask for agents prices and trial offer.

MANTLE LAMP COMPANY,

360 Aladdin Building, CHICAGO, ILL.

10 Days TRIAL
Ask for Particulars




The BEST Light

Cheapest and best light for homes, stores, factories, churches and public halls. Makes and burns its own gas. Brighter than electricity or acetylene. Cheaper than kerosene. Over 200 styles. Agents wanted. Write for catalogue.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.



FARM FENCE

41 INCHES HIGH

100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

KITSELMAN BROS. Box 21 Muncie, Ind

20 CENTS A ROD

APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthy and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

Test "IMPERIAL" 30 Days in Your Own Home at OUR RISK



The Exclusive Feature Range:

Odor Hood, Stone Oven Bottom, Ash Sifter. Wonderful Fuel Economizer—Splendid Baker. NO MIDDLE-MAN'S PROFIT. DIRECT FROM FACTORY TO HOME AT FACTORY PRICE. FREIGHT PREPAID. 365-DAY GUARANTEE. Credit if desired. WRITE TODAY for Money-Saving Catalog of Ranges and Heaters.

THE IMPERIAL STEEL RANGE COMPANY
240 STATE STREET, CLEVELAND, OHIO

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier, profits larger.

MANN'S LATEST MODEL Bone Cutter

Cuts all bone with adhering meat and gristle. Never clogs. 10 Days' Free Trial. No money in advance.

Send Today for Free Book.

F. W. Mann Co., Box 37, Milford, Mass.



ELECTRIC Steel Wheels

for your wagon. Use your old running gears—our steel wheels will fit them and make your wagon good as new. Guns, dogs, furs, fish, roots, trapping secrets, 10c. Camp & Trail, 16-24 p. weekly, same subjects, raw fur reports, prices, 6c. A. R. Harding, Publ., Box 319, Columbus, O.

ELECTRIC WHEEL CO., Box 23, Quincy, Ill.



HUNTERS! TRAPPERS! BUYERS! Make More Money. Read Hunter-Trapper 128-300 p. magazine about game, guns, dogs, furs, fish, roots, trapping secrets, 10c. Camp & Trail, 16-24 p. weekly, same subjects, raw fur reports, prices, 6c. A. R. Harding, Publ., Box 319, Columbus, O.

Lexington Hotel

500 Rooms

European Plan

Michigan Boulevard & 22nd St.

Chicago, Ill.



The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

**M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.**

BARNES'

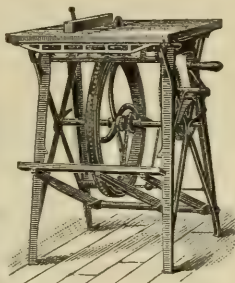
Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

**W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.**



CLOSING - OUT OFFER.

We have about 100 choice queens left that we will sell at a reduced price. Untested, 70 cents each; ½ doz., \$4.00, tested, \$1.00; ½ doz., \$5.00.

Fred Leininger & Son, Delphos, Ohio

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But, I didn't know anything about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machines as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it? Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in 6 minutes.

Address me this way—H. L. Barker, 737 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ont.



4 BUGGY WHEELS PRICED PAID \$8.75

With Rubber Tires, \$18.45. Your Wheels Re-rubbered, \$10.30. I make wheels ½ to 4 in. tread. Tops, \$6.50, Shafts, 2.10; Repair Wheels, \$5.95; Axles \$2.25; Wag-on Umbrella free. Buy direct. Ask for Catalog 47

SPLIT HICKORY WHEEL CO., 547 F St., Cincinnati, Ohio

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Light-amber honey, put up in 60-lb. cans. JOHN DREUTH, Kersey, Ind.

FOR SALE.—Extracted clover honey, \$10.50 per case of 120 lbs. M. ISBELL, Norwich, N. Y.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Fine light honey, comb and extracted. F. B. CAVANAGH, Hebron, Ind.

Fancy Michigan extracted honey in quantity and packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

Fancy and No. 1 white-clover honey, \$8.50 and \$8.35 per case of 24 sections, six cases to carrier. ROBERT GILBERT, White Bear Lake, Minn.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY-PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—Finest quality new clover honey in 60-lb. tin cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

Very fine quality of raspberry-milkweed honey in new 60-lb. cans at 9 cts. P. W. SOWINSKI, Bellaire, Mich.

Fine white and light amber alfalfa honey put up in any size of tin package, any quantity. DADANT & SONS, Hamilton, Ills.

FOR SALE.—New buckwheat extracted honey in 60-lb. and 200-lb. kegs. B. B. COGGSHALL, Rt. 12, Groton, N. Y.

Comb honey capped white in shallow frames, 12½ cts. per lb., f. o. b. here crated. Extracted amber in 60-lb. cans, \$6.00. Samples, 5 cts. JOHN W. CASH, Bogart, Ga.

FOR SALE.—Two carloads of choice sage honey by the can or case. Samples of honey and desirable California souvenir free for a stamp. C. W. DAYTON, Chatsworth, Cal.

Our fall crop of comb honey at \$3 per case of 24 sections, well filled, six cases to carrier; extracted, 8 cts. to 9 cts.; two sixty-pound cans to case. QUININ-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Extra fine quality of clover and basswood honey in new 60-lb. cans, two in a case, at 10 cts. per lb. Large sample, 8 cts., which may apply on first order sent in. EDW. A. REDDOUT, Box 43, Lysander, N. Y.

FOR SALE.—22 tons of honey, finest quality; raspberry, and a blend of raspberry and milkweed, raspberry and basswood, in new 60-lb. cans, two in case, at 9 cts.; whole lot 8½ cts. J. N. HARRIS, Mancelona, Mich.

FOR SALE.—White-clover and basswood extracted honey, blended in the extractor; put up in brand-new 60-lb. cans, 2 cans per case, at \$12 per case of 2 cans or more, F. O. B. Flint. Cash with order. This honey is the finest I have ever produced. L. S. GRIGGS, 711 Avon St., Flint, Mich.

RASPBERRY HONEY.—Our crop of raspberry honey this season is very fine—the best in quality I ever saw. It was left on the hives until it was all sealed, and thoroughly ripened by the bees. Thick, rich, and delicious. It is put up in new 60-lb. tin cans. Price \$6.00 per can. Large-sized sample by mail, 10 cts. Said 10 cts. may be deducted from any order sent for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—No. 1 white-clover comb honey. Give quantity, description, and price wanted. Will pay cash or exchange bee-supplies. E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Honey wholesale. Would like to hear from those having comb honey in car lots to market. Heretofore we have at times sustained the market by buying heavily and holding, on one occasion carrying some 40 carloads three months. If you need us let us hear from you with particulars. THOS. J. STANLEY, Manzanola, Otero Co., Col.

WANTED.—Car of light-medium or dark-amber extracted honey in cases of two five-gallon cans. We prefer the light amber to the dark, but can use quite a quantity of either grade provided the flavor is mild. Our trade does not want a pronounced-flavored honey. Submit a two or four ounce sample and quote your best prices delivered to your railroad station.

THE A. I. ROOT Co., Medina, Ohio.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—300 bushels metatias seed, \$2.00 per bushel, f. o. b. Macon, Miss. HUBBARD BROS., Rt. 1, McLeod, Miss.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight. G. F. STANTON, Buckingham, Fla.

For section extractors and entrance feeders, ask for circulars. A. H. OPPER, 6259 Paterson Ave., Chicago.

For sale or exchange for income-bearing property, our entire business, 1500 colonies of bees and fixtures. Reason for selling, poor health. OGDEN BEE AND HONEY Co., Ogden, Utah.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

New crop white-sweet-clover seed, 4 lbs. by mail, prepaid, \$1.12; 50 to 100 lbs., 15c. per lb., hulled; unhulled, 3c. less. Alfalfa seed, same price. R. L. SNODGRASS, Rt. 4, Augusta, Kan.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Re-cleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

Choice warranted golden Italians ready, \$1.00.
J. B. CASE, Port Orange, Fla.

Choice Italian queens, untested, 75 cents; tested,
\$1.25. W. A. H. GILSTRAP, Rt. 3, Modesto, Cal.

FOR SALE.—200 colonies bees.
J. O. BAIRD, New Plymouth, Idaho.

Colonies of Italian bees, Root strain, full of
stores. SARA A. KERR, 94 S. Gamble St., Shelby, O.

Ten colonies Italian bees on Hoffman self-spacing
8 frames, \$3.50 each.
JOHN E. EVERETT, Bound Brook, N. J.

FOR SALE.—Untested golden Italian queens, the
rest of this season, 50 cts.
S. H. RICKARD, 506 Machesney Bldg., Pittsburg, Pa.

FOR SALE.—Untested Italian queens. Safe arrival
and pure mating guaranteed. Untested, 75 cts.;
doz., \$7.00. E. A. SIMMONS, Greenville, Ala.

Golden Italian queens, nuclei, and full colonies.
See price list, Gleanings, May 15, page 8.
ISAAC F. TILLINGHAST, Factoryville, Pa.

FINE ITALIAN QUEENS.—Prolific, hardy, gentle.
Root strain. Untested 75 cts. each; 6 for \$4.25.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—Three-banded Italian queens bred for
honey, gentleness, and prolificness. One, \$1.00; 6
for \$5.00. WM. S. BARNETT, Barnett's, Va.

FOR SALE.—Golden untested queens, 75 cts. each,
or \$7.25 dozen; safe arrival guaranteed.
D. F. TALLEY, Rt. 4, Greenville, Ala.

Hardy northern-grown queens of Moore's strain
of Italians, ready for prompt shipment. Untested,
\$1.00, 6 for \$5.00; 12 for \$9.00. Write for lots
of 50 or more. P. B. RAMER, Harmony, Minn.

Italian queens by return mail. Untested, \$1.00;
tested, \$1.50 after Oct. 1st. Have a few Carni-
olans, Italian mated; will close them out at 60 cts.
each. Send to-day E. E. MOTT, Glenwood, Mich.

Three-banded Italian queens. Best honey-gath-
erers. Untested, 50 cents each. Can fill orders
promptly. No disease.
W. D. ACHORD, Fitzpatrick, Ala.

Colonies of Italian bees in L. hives, 10-fr., built
on full brood-frames, wired, body and shallow super,
redwood, dovetailed, three coats white, sheeted lids;
each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees,
the brightest kind. Gentle, and as good honey-gath-
erers as can be found. Each, \$1.00; six, \$5.00;
tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnetts, Vt.

FOR SALE.—Moore's strain and golden Italian
queens, untested, \$1.00; six, \$5.00; twelve, \$9.00.
Carniolan, Banat, and Caucasian queens, select,
\$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind,
\$1.50; six, \$8.00. Choice breeders, \$3.00. Circular
free. W. H. RAILS, Orange, Cal.

FOR SALE.—Twenty-eight colonies of bees in
standard 8-frame hives; hardy and vigorous North-
ern-bred Italian stock, and fine honey-getters;
averaged 180 lbs. this year. In good condition for
winter, Oct. 1; \$4.00 per colony, or \$5.00 with
telescope cap. (Removal, cause of sale).
L. V. ALWIN, Waldheim, New Ulm, Minn.

FOR SALE.—800 colonies of Italian bees, more or
less, situated in five yards; all in good condition, on
this beautiful island of Jamaica, a land of perpet-
ual sunshine; flowers nearly the whole year round;
good investment for a practical up-to-date beekeeper
to take hold of now. Write for further particulars.
DAVID MARCHALLECK,
Morant Bay, Jamaica.

FOR SALE.—Italian queens, bred from the best
honey-gathering strains obtainable. Untested, 75
cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50.
Nuclei without queen, one frame, \$1.50; two frame,
\$2.00; three-frame, \$2.75. For queens and nuclei
in quantity lots, and bees by the pound, write for
prices and circulars. Virgin queens from my best
breeders, 40 cts. each; three for \$1.00.
ROBT. B. SPICER, Wharton, N. J.

FOR SALE.—North Carolina-bred Italian queens,
bred up for business; none better for honey-gath-
ering; good recommendations coming in almost every
day. I have Root's and Moore's strain, Davis',
Quirin's, Laws', and choice imported breeders, to
get my fine honey-gathering strain from. I breed
all queens in full two-story colonies running over
with bees at all times. I don't keep any thing but
the red clovers and the Goldens in my yards. Try
them and see for yourself. Untested, 75 cts.; doz.,
\$7.00; tested, \$1.25; select tested, \$1.50. Extra
select tested, \$2.00. Select breeders, \$3.00. Extra
select, \$5.00. H. B. MURRAY, Liberty, N. C.

MISCELLANEOUS

White and brown ferrets. Stamp for description
and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Bronzed Honey Labels, 250, 50 cts.; 500, 80
cts.; 1000, \$1.10, postpaid. Send 2 cts. for sam-
ples. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—5x7 long-focus Premo camera, in
good condition, with rapid universal lens, 4 plate-
holders, and tripod. Price \$33 net here.
P. C. CHADWICK, Redlands, Cal.

PIGEONS! PIGEONS! Thousands, all breeds; many
satisfied customers everywhere; start with our
money-making pigeons. Large free illustrated mat-
ter. PROV. SQUAB CO., Providence, R. I.

WANTED.—Copies of GLEANINGS in good con-
dition, for Jan. 1, 1912, and for Feb. 15, 1912.
Subscribers having perfect copies for either of
these dates will please notify us by post card, if
they wish to exchange either number for a two
months' credit on time of subscription.
The A. I. ROOT COMPANY, Medina, Ohio.

HELP WANTED

WANTED.—Four or five helpers to assist me in a
large house-to-house honey-selling business. A rare
chance to learn a business that will pay a fancy
income. JOHN C. BULL, Rt. 8, Valparaiso, Ind.

WANTS AND EXCHANGES

WANTED.—To rent or buy an apiary of 100 colonies of bees. ELMER McCANN, Continental, O.

WANTED.—To buy bees in Southern California. BEEKEEPER, Lock Box 16, Surrey, Cal. 39935.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey. ERNEST W. FOX, Clint, Texas.

WANTED.—To exchange Root bee supplies, either for money or honey. Catalog. E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Bees, anywhere from 50 to 500 stands. State prices. Address BOX 135, Ceres, Cal.

REAL ESTATE

\$4000 buys my fine quarter section located in the great grain district of Saskatchewan, Can. D. E. LHOMMEDIEU, Colo, Iowa.

FOR SALE.—Seven-room house with pantry and closets; nearly new, in good town of 3000. Also 125 colonies of bees with fixtures to run the same. Extracted honey for sale. Best alfalfa, \$10.00 per case of 120 pounds, f. o. b. here. W. H. BIRNEY, Las Animas, Col.

FOR SALE.—Store and dwelling combined; good trade; $\frac{1}{4}$ acre of land; 10-room house; excellent place for chickens, also for bees; not a poor year in ten. The right place for a good man. The one selling wishes to retire from business. Will sell store, goods, chickens, and bees, if wanted. Write for particulars. W. H. FANNING, Shunk, Pa.

FOR SALE.—Farm of 90 acres in Ulster Co., New York. Well suited for bees, poultry, fruit, and dairy; $\frac{1}{4}$ mile from creamery and depot. Particulars gladly given. Price \$4000—\$2500 cash. STEPHEN R. CHRISTOPHER, West New Brighton, N. Y.

FOR SALE.—Apiary of 105 colonies of bees, with or without location, $\frac{3}{4}$ of an acre of ground in the edge of village, and planted to all kinds of fruit; about 40 trees are now bearing. Beeyard is enclosed with six-foot tight fence, which is lined inside with grapevines, currants, gooseberries, and blackberries. Frame shop and honey-house $1\frac{1}{2}$ story; 65-barrel cistern; corncrib; chicken and hog yards; every thing one needs but dwelling house. This would be a fine location for a queen-breeder—not over a dozen colonies of bees within $1\frac{1}{2}$ miles of the yard. No disease, and have never had any. The bees are all in good shape; hives as good as new; combs built on Hoffman frames; wired foundation, except possibly 100 frames. I spent \$500 in fitting up my yard, not counting my labor. Land sells here from \$200 to \$400 per acre. I am nine miles below Zanesville, on the Muskingum River, overflowing creek and river bottoms west, south, and east of me. The location is No. 1; I have had but one failure in 21 years that I have kept bees; good market for honey near. My crop is sold, and not all off yet, at \$3.75 per case. Any one buying the property will get good hive-stands, what winter cases I have, shade-boards, cushions, etc. I will take \$1000 for ground and bees, and a low price for extras, or will sell the bees, to be moved, for \$500. J. F. TRUEBELL, Duncan's Falls, Ohio.

POULTRY

BUTTERCUPS.—We have some fine young stock for sale. For prices, write RIVERVIEW POULTRY FARM, Union City, Mich.

Ringlet barred Rocks, choice breeding cockerels for sale. Correspondence cheerfully answered. W. H. PORTER, Rt. 23, Sandy Lake, Pa.

INDIAN RUNNER DUCKS

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS, American Standard light fawn, and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me. C. O. YOST, Rt. 4, Box D, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the court-house in Rockford, Ill., October 15. All interested in beekeeping are cordially invited to attend. B. KENNEDY, Sec. Rockford, Ill.

Bro. Beekeepers of Indiana:—By persistent and organized effort we have a fairly satisfactory bee-inspection law for Indiana, and a small appropriation to carry out its provisions.

This law has been fairly well enforced, and has done much by education to stop the ravages of foul brood. Various efforts have been made to take even this small appropriation away from us, and there will be a much stronger one made with the coming legislature. The beekeepers of Indiana can not afford to take a single step backward now, and I would urge that every beekeeper in the State enroll himself with the Indiana branch at least, and endeavor by all possible means to retain our present laws.

I should like to get in touch with every beekeeper in the State, and I would take it as a personal favor if you would send me your own name and address, and that of your beekeeping friends and neighbors.

GEO. W. WILLIAMS,
Sec. Indiana Branch, N. B. A.
Redky, Ind., Sept. 15.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

SIX-PER-CENT EARLY-ORDER DISCOUNT.

The early-order discount for cash orders received during the month of October for goods for next season's use is 6 per cent. Quite a number have taken advantage of the extreme discount available during the past month, and have sent in good-sized orders. We expect to hear from a larger number during October.

EDISON PHONOGRAPH.

We have taken in exchange for a comb-foundation mill an Edison phonograph in excellent condition, of a style which sells new for \$30.00. There go with it twenty records and two large concert horns. The records sell regularly at 50 cts. each, and the horns at \$3.00 to \$5.00 each. Two or three of the records are slightly damaged. We offer the lot for \$20 cash, which is less than half the value of new apparatus.

SPECIAL NOTICES

A. I. ROOT

Mr. Root:—While you are exposing these Florida land swindlers, how about the thousands of farmers that were swindled in sending for their seed corn last spring? I think we need grain inspectors to test all seeds handled by seed firms, and stop this shipping out worthless seed.

Tuscola, Ill.

JOHN HUNT.

Friend H., I do not know about the seed-corn swindles you allude to; but I do know that our experiment stations recommend that every farmer should grow and save his own seed corn. Corn gets "homesick" when taken to a new locality.

HIGH-PRESSURE GARDENING (?)

Two readers of GLEANINGS have clipped out the following advertisement, and sent it to me, asking my opinion of it:

"ELLIS POTATO SYSTEM." HOW TO GET 300 TO 400 BUSHELS OF POTATOES TO THE ACRE.

You ought to be ashamed to grow less. It can be accomplished by the "Ellis Potato System." This is not a book, but special information that will enable you to grow 300 bushels or more on your fields by following our instructions. This system covers all points of potato-growing, from seed to digging. Seven hundred bushels an acre under this system is common. Don't be an 85-bushel man when you can get 300 bushels with no more work or expense, simply knowing how. When you consider that all the way from 600 to 1300 bushels an acre have been produced by this system you may well decide to see what you can do. You now have the chance—it's all in knowing how. Send \$3.00 today for the "Ellis Potato System." Don't wait—start now for next year. Address "Ellis System," 1532 Mars Ave., Lakewood, Ohio.

I agree with the above in so far as to its "being a shame" to grow only 85 bushels of potatoes to the acre; and I do think there should be no great trouble in getting 300—that is, if you have a *man* equal to the task; but when it comes to 600 bushels, or more than twice as much, while it is possible it is not probable that the average farmer could get any such result. I sent the three dollars promptly, and re-

ceived in reply a lot of questions which I am to answer. Then Mr. Ellis is to give me personal instructions, something on the plan of the "correspondence schools." He replied that it would take up something like three weeks to go over my situation carefully, and give me practical advice. So far as I have been able to learn, he furnishes no sort of book or treatise in regard to potato-growing in general; and I would ask our friends to wait before investing, until I see what I am to get for my three dollars. In his reply he says he is well aware that Terry and I are authors of the A B C of Potato Culture.

OUR DUCKS, AND SOME OTHER THINGS DOWN IN OUR FLORIDA HOME.

Mr. Root:—Since I wrote, the old duck (one of those you brought from Ohio) died, June 30. She had not acted right for ten days, but laid up to the fourth day before she died. Since that the other old one disappeared during the night. She was very thin, and had not laid for some time. About a month ago one of the young ducks, after refusing to eat for several days, disappeared also. An alligator killed one of mine, about three months old, two weeks ago; but he will get no more, as I caught him in a wolftrap a few days after. There are now twenty ducks and seven drakes. I think four drakes are enough. There are four nearly all white, and I think they are the best to keep.

We have been having rather warm weather lately, and not much heavy rain, which favors the egg crop. In July they laid about 12 a day; in August, 15; and so far this month, 17. The eggs, most of them, are nearly full size now. I feed them five quarts of corn at 5:30 P. M., which they consume in about two minutes, and then sit down as if about tired out after their hard day's work. The next morning they rush to meet me, with a noise that is almost deafening. The eggs are not as salable as hens' eggs, especially the tinted ones. I notice that the white ducks lay the white eggs. I think it will be well to set only light eggs, so as to get rid of the tinted ones, which, I think, would overcome the whole difficulty.

Bradentown, Fla., Sept. 3. C. A. MORGAN.

P. S.—The moccasin that was such a terror to the ducks was carried down by the flood to the corner of my lot, near the bridge, and Herbert killed him. He was the largest I ever saw. The new bridge is finished, but not the approaches.

LATER.—We have had another downpour, so I have kept the ducks in since the 7th. That means more corn and fewer eggs. I got nine to-day. I shall be able to let them out in a few days. Eggs are 30 cents now, and will be dearer in a few weeks. Roads are in a terrible condition.

C. A. MORGAN.

Honey Reports continued from page 5.

CINCINNATI.—The demand for both extracted and comb honey is not up to expectations by far for this time of the year. Big buyers refuse to pay the prices we must ask, and we fear that it will be a case of a small business or lower prices; and owing to the high prices we have paid, it will be impossible for us to lower our price. We are selling strictly fancy comb honey at 14 to 16½, according to the quantity and quality purchased; amber comb honey is not wanted at any price. What little is sold of fancy extracted honey in 60-lb. cans, we are getting 8 to 10 for it, while amber honey in barrels we are selling at 5½ to 7, according to the grade and quantity purchased. There is plenty of beeswax, and the prices are much easier than they have been for some time. We are paying 23 delivered here for choice bright yellow beeswax.

Cincinnati, Sept. 18. THE FRED W. MUTH CO.

HONEY LABELS

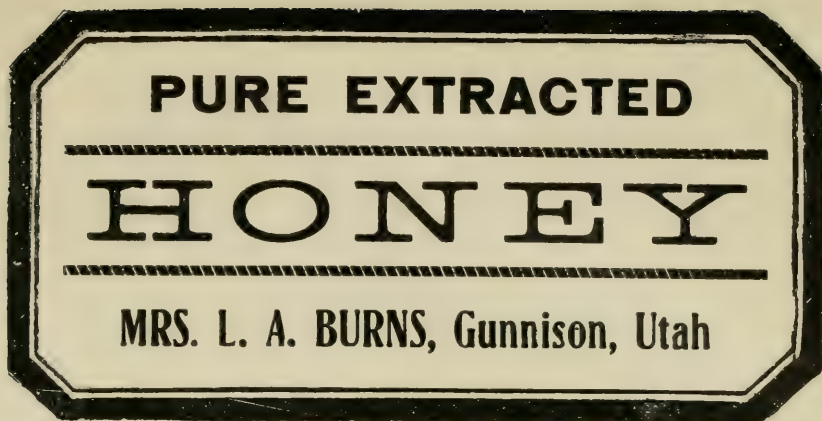
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

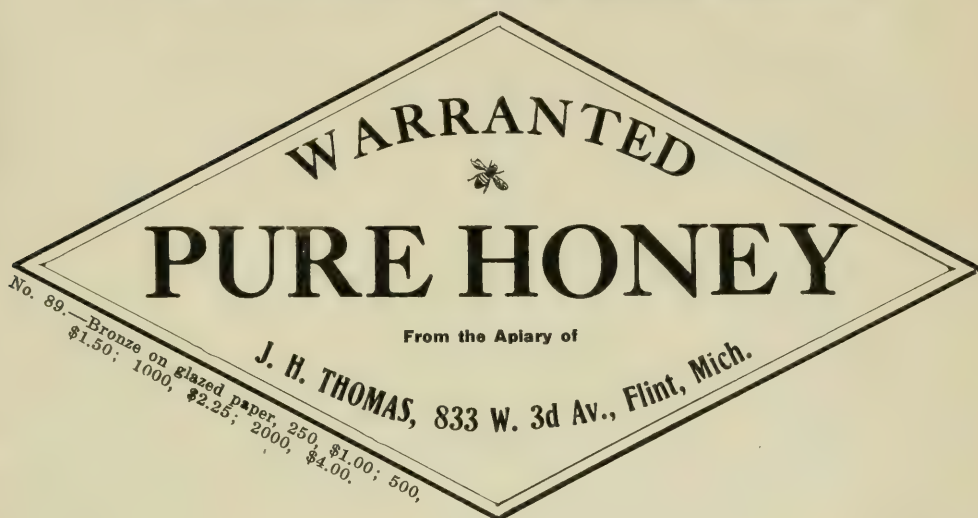
We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



No. 89.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.



No. 94.—Bronze on glazed paper, 250, 90c.; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.

Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.



No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000 \$4.00.

These Remarkable Books Practically

FREE

We have now completed arrangements by which we offer all readers, in connection with special subscription offers, any of this great series of booklets called

“MONEY-MAKING SECRETS”

POULTRY SECRETS: First published in 1908, this collection of the carefully-guarded secrets of famous poultrymen created a sensation in poultry circles. Every secret is valuable and every one has passed severe tests of its usefulness. 64 pages, illustrated. 15th Edition, 110th thousand.

HORSE SECRETS: Compiled and written by DR. A. S. ALEXANDER, of Wisconsin, the eminent veterinarian. Exposes the swindling methods of “gyps” and crooked dealers. Also many feeding and fattening secrets. Invaluable to horse buyers and owners. 64 pages, illustrated. 9th Edition, 85th thousand.

THE MILLION EGG FARM: Describing the enormous business and plant of J. M. Foster's Rancocas Farm, where 18,000 laying hens produced last year the amazing total of 1,121,478 eggs. Written specially for beginners. 80 pages, profusely illustrated. 4th Edition, 35th thousand.

THE CURTISS POULTRY BOOK: The story of the Curtiss brothers and their great Niagara Farm, built up from nothing to an annual business approximating \$100,000 per year. Ducks, eggs, broilers, and cut clover are their staples. A remarkable story. 56 pages, illustrated. 3rd Edition, 30th thousand.

DRESSMAKING SELF-TAUGHT: For girls and women who wish to learn dressmaking quickly and thoroughly, either for making their own clothes or as a business. Twenty lessons by an expert. Clear, comprehensive, practical, new. 64 pages with diagrams.

DUCK DOLLARS: There is money in ducks. The Weber brothers market about 40,000 ducklings each year, and make a clearnet profit of 50 cents on each one. This new booklet tells exactly how, with valuable advice for beginners as to operation and markets. 88 pages, illustrated.

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TURKEY SECRETS: The way to make turkeys a profitable farm crop, as demonstrated by HORACE VOSE of Rhode Island, the veteran turkey raiser who supplies the turkey for the President's Thanksgiving dinner each year. Instructive and enlightening. 64 pages, freely illustrated.

GARDEN GOLD: A new booklet written for people with small gardens, showing how to raise your own vegetables in these days of high prices, and SAVE money. And how to MAKE money by selling your surplus. Splendid for people with back yards only. 64 pages, illustrated.

SHALL I FARM? For city people trying to decide whether or not to go to the country. No golden promises, but a clear, impartial, unbiased, unprejudiced weighing of the subject. All the advantages and disadvantages of all kinds of farming plainly set forth. Nothing like it ever before printed. 64 pages.

So popular are these booklets, and so valuable their contents, that nearly

400,000 COPIES HAVE BEEN SOLD

during the last three years. Each is the very latest work in its own particular field—together they cover new discoveries, secret methods, exposures, new systems, little known information, and astonishing achievements in many lines.

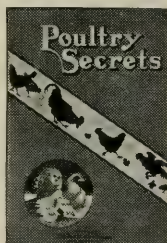
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THIS PAPER is well known to you, and requires no description or praise here.

The FARM JOURNAL is the standard farm and home paper—foremost in the world. It has more than 750,000 subscribers. It is up-to-date, clean, boiled-down, honest. It knows what to say, and can stop when it has said it. It is for the poultryman, gardener, horse owner, dairyman, grain grower, fruitman, the farmer, the villager, the suburbanite, the man who lives in the country, and those who would like to, the women folks, the boys and girls. In short, it is for YOU. Cheerful, entertaining, intensely practical, absolutely clean. When the time is up it will stop.



CUT OUT AND SEND THIS COUPON

GLEANINGS IN BEE CULTURE, Medina, Ohio

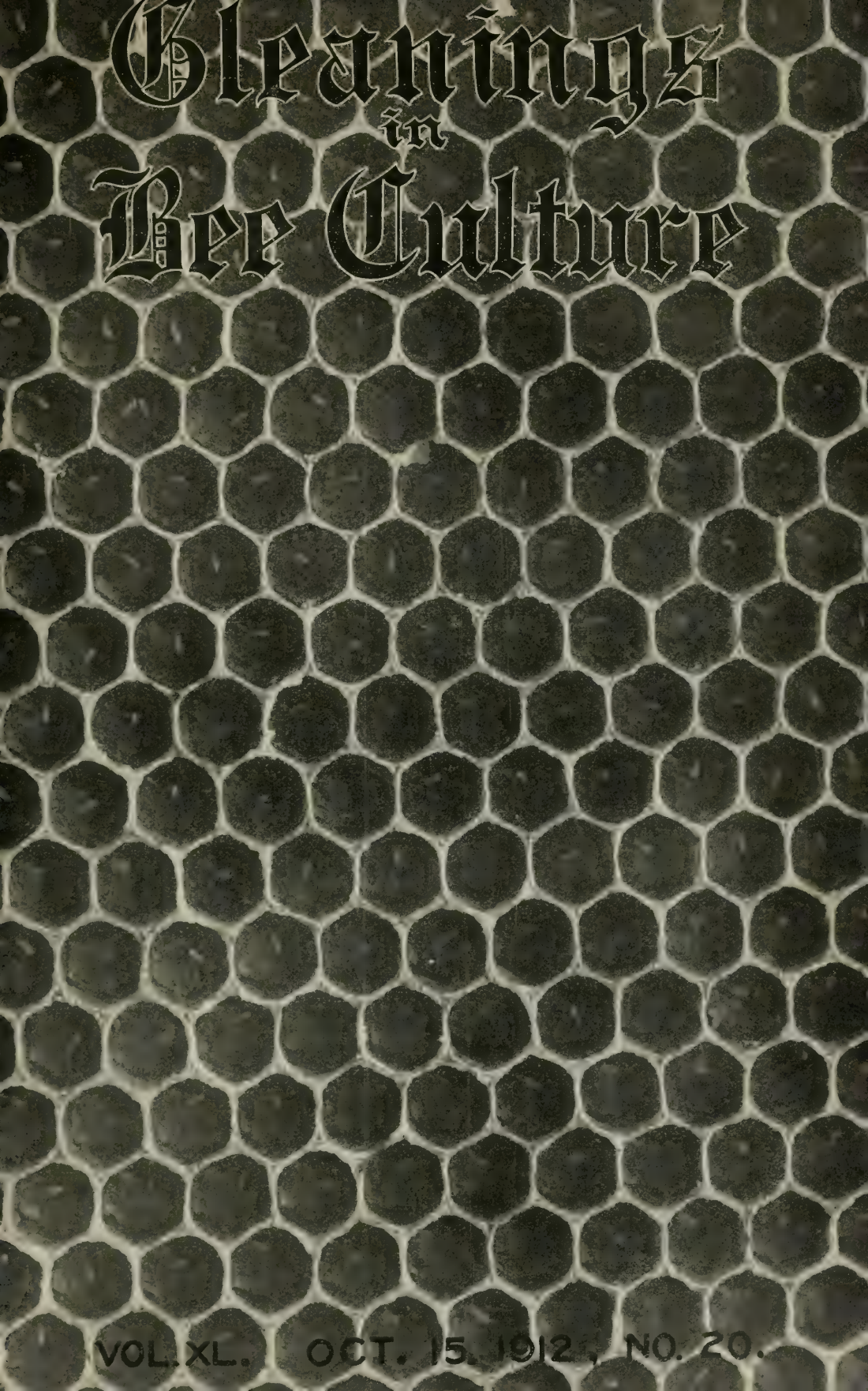
For the enclosed \$1.00 send me your paper one year, FARM JOURNAL till Dec. 1915, and the booklet

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For extra booklets, add 20 cents each.

The background of the entire page is a detailed, dark-toned honeycomb pattern. The hexagonal cells are uniform in size and shape, creating a textured, grid-like appearance that covers the entire surface.

Cleanings in Bee Culture

VOL. XL. OCT. 15, 1912, NO. 20.



Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on MR. HUTCHINSON'S life by Prof. A. J. Cook, in GLEANINGS:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our bee-keeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work, to which he was so entirely devoted. His quick apprehension and terse clear-cut style, as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Most fortunate for all bee-keepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of ADVANCED BEE CULTURE. Only a few short days after an editorial by Mr. E. R. Root, editor of GLEANINGS IN BEE CULTURE, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly)—known and read by bee-keepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and GLEANINGS one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

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Three-banded Italians . Caucasians . Golden Italians . Carniolans

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Untested 1, \$1.00; 6, \$5.50; 12, \$10.00
 Select Untested 1.25 6.75 12.75
 Tested, \$1.50 each; six, \$8.00; twelve, \$15.00.

July 1 to October 1

Untested 1, \$.75; 6, \$4.25; 12, \$ 8.00
 Select Untested 1.00 5.50 10.00
 Select tested, \$2.00 each; six, \$10.00; twelve, \$18.00.

We charge 10c for clipping a queen's wings. All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are printed on the reverse side of the cage cover. Virgins from good mothers, 40c. Safe arrival and satisfaction guaranteed.

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Insure safe arrival of your comb honey, and better price, by using the best protection cases made. Get our prices of SAFETY CASES, and regular cases with corrugated pad, top and bottom, and corrugated follower. Dealers everywhere. Red catalog postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from

ORDER ON LOW MARKET



**Save 6 per cent
in October**

For October only, we will offer you the liberal discount of six per cent on any bee supplies ordered from us. Now is the time to stock up for the coming season. Have you got those honey cans or jars yet? Don't wait too long. Ask for

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It describes our complete line of bee supplies, and contains much interesting and useful information on the care and management of bees. It is FREE.

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For Plants:

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For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . . Tells a beginner's experiences in a way to help other beginners.

PRICE \$1.10 POSTPAID.

The A. I. Root Co., Medina, Ohio

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weight at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8. Beeswax, 30.

Boston, Oct. 8.

BLAKE-LEE CO.

ALBANY.—Honey market quiet, with light receipts, and crop very light in this section. We quote white clover at 15 to 16; mixed, 14 to 15; buckwheat is scarce at 13; extracted white, 8 to 9; buckwheat and amber, 7½. Beeswax, 30 to 32.

Albany, N. Y., Oct. 2.

H. R. WRIGHT.

DENVER.—We quote our local market in a jobbing way as follows: No. 1 comb, per case of 24 sections, \$3.15; choice, \$3.00; No. 2, \$2.85. White extracted, 9; light amber, 8; strained, 6¾ to 7½. We pay 26 in cash or 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Oct. 4. F. RAUCHFUSS, Mgr.

SCHENECTADY.—Our market is in fine shape, both comb and extracted honey moving off freely. There seems to be a scarcity of buckwheat, especially extracted, and we are unable to fill large orders at present. We quote fancy white clover in cartons at 16 to 18; No. 1, 15 to 16; other grades, 13 to 14; buckwheat fancy, 13; No. 1, 12; mixed, 11 to 12. Extracted, light, 8 to 9; dark, 7 to 8.

Schenectady, N. Y., Oct. 2. CHAS. MACCULLOCH.

ZANESVILLE.—The local market is not very strong for extracted honey; but there is a staple demand for comb, and up to the present time the available supply has been inadequate. There should be a pretty good movement during October and November, and producers who are awake to their best interests should dispose of their crops before December 1, as our experience is that the demand is very slack just before and for a month or two after the holidays; and any change in prices is likely to be downward rather than upward at that time. For the better grades of white comb, 18 to 19 cents is the prevailing price, with some concession on quantity orders. White extracted in 60-lb. cans, 9½ to 11. Producers receive for beeswax, 28 cts. cash, 30 in trade.

Zanesville, O., Oct. 2.

E. W. PEIRCE.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

The Best Time to Buy Supplies

The season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow **BEFORE** it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—six per cent for cash orders sent in October, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor.

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

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BUFFALO.—There is some improvement in the demand for white comb honey. Prices are not high; but in order to move freely we must keep at about as quoted. No accumulation in the market. Conditions are favorable for a free movement. No dark arriving. We quote: Fancy white-clover comb, 16; No. 1 to choice, 15 to 16; No. 2, 12 to 14. Arrivals of white extracted are very light, and sell at 8½ to 9.

Buffalo, N. Y., Oct. 9. W. C. TOWNSEND

CHICAGO.—During September honey has sold in a very satisfactory way. Nearly all the receipts were taken upon arrival and the price has been well maintained on comb honey. Most of the No. 1 white sells at 16 to 17, and the A No. 1 to fancy at 17 to 18. The amber grades have sold at from 12 to 15, according to color and flavor. At present there is an easy feeling, and prices are likely to recede from those herein given. Extracted continues to sell at 8 to 9 for the white grades, with the lindens bringing 10 if of high flavor and quality. Amber grades range at from 7 to 8, according to color, flavor, and quality. Beeswax is steady at from 30 to 32.

Chicago, Oct. 2. R. A. BURNETT & Co.

ST. LOUIS.—The demand for choice new comb honey is very good, and the supply is inadequate. There is considerable comb honey of inferior quality coming from the South, which moves very slow. We quote fancy white at 16 to 17; No. 2 white, 15; amber, 13 to 15; dark, 9 to 11; broken and inferior quality is not wanted in this market. The demand for extracted honey is also good, and quotable as follows: Light-amber Southern in barrels and half-barrels, 7 cents; in five-gallon cans, 7½. The receipts of white-clover and Californian are small, and are quotable nominal at 9 to 9½ cents. Beeswax is in good demand at 29 for prime. Inferior and impure sells at less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Oct. 4.

LIVERPOOL.—The market remains very slow at present, and we have had no fresh arrivals during the past fortnight. Sellers are not pressing for offers, and in the mean time there is not much inquiry. Quotations are as follows: Haitien, \$6.24 to \$7.92 per cwt.; Peruvian, \$5.76; Chilian, \$5.76 to \$8.16; Jamaican, \$6.00 to \$8.40; Californian, \$9.60 to \$11.16. The beeswax market is steady; but as consumers are full at present we have no business to report. We value Chilian at \$33.88 to \$39.92. Business has been doing in Gambia and Sierra Leone at last prices. Values are about as follows: Chilian, \$33.88 to \$39.92; African, \$32.64 to \$34.48; West Indies, \$31.44 to \$36.28.

Liverpool, Sept. 17.

TAYLOR & Co.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED SEMI-MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, A. I. Root, Medina, Ohio; Managing Editor, E. R. Root, Medina, Ohio; Business Managers, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows:

A. I. Root, Medina, Ohio; E. R. Root, Medina, Ohio; H. H. Root, Medina, Ohio; Susan Root, Medina, Ohio; J. T. Calvert, Medina, Ohio; A. L. Boyden, Medina, Ohio; L. W. Boyden, Medina, Ohio; A. A. Bostwick, Seville, Ohio; Mrs. Fannie Curtis, Medina, Ohio; Mrs. C. W. Geckler, Valley City, O.; P. W. Himelspach, Mallet Creek, O.; Thos. Shaw, Medina, Ohio; Frank Spellman, Medina, Ohio; R. W. Turner, Medina, Ohio.

(Signed) THE A. I. Root Co.

Sworn to and subscribed before me this first day of October, 1912.

(Signed) FRANK SPELLMAN.

[SEAL.]

(My commission expires Feb. 23, 1914.)

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AMERICAN BEE JOURNAL, . . HAMILTON, ILLINOIS



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Ladoga, Ind., Aug. 6, 1912.

Walter S. Pouder, Indianapolis, Ind.

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BY T. B. TERRY AND A. I. ROOT.

Mr. A. I. Root devoted a large part of his time during the summer of 1911 to revising the Potato Book which he wrote in collaboration with Mr. Terry 25 years ago. During the winter the 8th edition of 10,000 copies has been printed. Speaking of this valuable book, and of Mr. Terry, Mr. Root recently had to say:—"It will pay almost every man, woman, and child to read Terry's potato-book, no matter whether you ever did or ever will grow any potatoes or not. If you have read Terry's recent book, "How to Keep Well and Live Long," you will know that he is a student of nature, and a deliverer after God's gifts and God's secrets; and this potato-book, on every page, shows his remarkable gift. He is a philosopher of modern date; and his love for God's gifts, as well as his love for his fellow-men, shines out on every page. His studies of potatoes, it occurs to me, paved the way in his explorations in his later work in regard to how we should live, and keep our health." Contains nearly 400 pages, well illustrated, paper bound, 57c each postpaid. Cloth bound, 85c each, postpaid. (Deduct 7c if ordered sent with freight or express shipment.)

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BY T. B. TERRY.

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Nearly a thousand copies of this helpful book have been distributed through the publishers of "GLEANINGS IN BEE CULTURE," and not a single reader has expressed regret at his bargain. Mr. A. I. Root heartily endorses Mr. Terry's writings on health subjects. Contains 220 pages, substantially bound in cloth; \$1.00 per copy postpaid.

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The A. I. Root Co., Medina, Ohio.

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We have said so much about the quality of Root's goods, and they are already so well known by beekeepers, that it hardly seems necessary even to mention the fact, except to remind you that we carry always a full and complete stock of Root's goods only. If you have tried others and they haven't given just the satisfaction they should, send us a trial order this season. For quality of material and accuracy of workmanship you will find them unexcelled.

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Each season we aim to make some improvement in the service we can give our customers. We aim to keep our stocks always complete, and to allow no order, large or small, to drag through our establishment. The shipping facilities at our command enable us to get goods started to you by direct routes at once. Whether your order is large or small it will have the most careful attention at our hands from the time it reaches us until the goods are in your hands.

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That fill the supers quick
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They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.
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Safe arrival and satisfaction guaranteed.
Circular free.

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Gleanings in Bee Culture, Medina, Ohio.

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- 10 **The A B C of Bee Culture.** A complete encyclopaedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Gleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Out Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

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Name

Street Address or R. F. D.

Town

G.B.O. 10-15-12 State

The season for honey is drawing to a close and you will now be in need of

SHIPPING - CASES

We carry them in stock at Syracuse, N. Y., and can make prompt shipment, having just purchased a motor truck for delivering goods to the railroads. We have heretofore depended on a truckman, who did not always happen to be on hand.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

**Water White
Alfalfa Honey**

**Light Amber
Alfalfa Honey**

**Light Amber
Fall Honey**

In any size quantities, in any size packages. If your honey crop is short, and you want to supply your regular trade, write to us for prices. We are sure that we can supply what you want at prices you can pay. Five cents for a sample of any kind desired.

We want your **BEESWAX** to work into

DADANT'S FOUNDATION

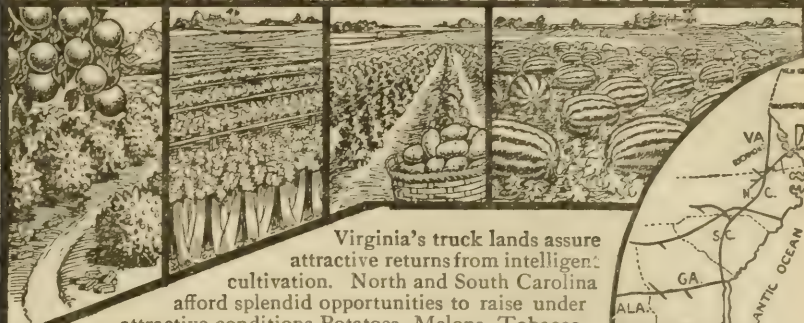
or will pay cash for it in exchange for goods. Five per cent discount on foundation and bee supplies during November. It will pay you to order early.

DADANT & SONS, Hamilton, Ill.

COME SOUTH

RICH LANDS-REASONABLE PRICES

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RY.



Virginia's truck lands assure attractive returns from intelligent cultivation. North and South Carolina afford splendid opportunities to raise under attractive conditions Potatoes, Melons, Tobacco, Sugar Cane, Dewberries, Strawberries. Georgia, the empire state of the south, attracts the homeseeker who wants to locate on rich, arable land, producing good money crops within easy reach of markets. Florida, land of opportunity, home of the successful cultivation of the Orange, Grape Fruit, Celery and a long list of Vegetables, which combination of soil and climatic conditions, puts in the first markets at best prices. Several crops annually: crop-growing season 348 days. The Six Southern States traversed by the Seaboard Air Line Railway offer special inducements. Ideal climate, water plentiful, quick transportation to big markets. Illustrated booklets free.

J. A. PRIDE, Gen. Ind. Agt., SEABOARD AIR LINE RAILWAY, Suite 376, NORFOLK, VA. 7

Test "IMPERIAL" 30 Days In Your Own Home at OUR RISK



The Exclusive Feature Range: Odor Hood, Stone Oven Bottom, Ash Sifter.

Wonderful Fuel Economizer—Splendid Baker. NO MIDDLE-MAN'S PROFIT. DIRECT FROM FACTORY TO HOME AT FACTORY PRICE. FREIGHT PREPAID. 365-DAY GUARANTEE. Credit if desired. WRITE TODAY for Money-Saving Catalog of Ranges and Heaters.

THE IMPERIAL STEEL RANGE COMPANY
240 STATE STREET, CLEVELAND, OHIO

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

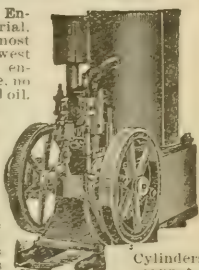
Gasoline GOING UP!

Gasoline is 9c to 15c higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts —no cams—no sprockets—no gears —no valves—the utmost in simplicity, power and strength. Mounted on skids. All carbonize sizes, 2 to 20 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low Introductory price. Write (138)

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



Cylinders cannot

carbonize

THE "BEST" LIGHT



MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

MAKE YOUR HENS LAY

You can double your egg yield by feeding fresh-cut, raw bone. It contains four times as much egg-making material as grain, and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S Latest-model BONE-CUTTER
cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on 10 Days' Free Trial. No money down. Send for our free books to-day.

F. W. MANN CO., Box 37, MILFORD, MASS.



We will mail you a copy of

THE COUNTRY GENTLEMAN

(The Oldest Agricultural Journal in the World)

every week from now until February 1st, 1913, for 25 cents--half price

THE oldest agricultural journal in the world changed hands a year ago. It had been issued for 80 years; yet in this last year 60,000 more farmers than ever before have begun to buy it. We offer it to you on trial four months for 25 cents--half price. THE COUNTRY GENTLEMAN is a NATIONAL weekly devoted to agriculture as a great BUSINESS INDUSTRY. It is the answer to a demand. In England "the country gentleman" is a man of means, with estates cultivated by others. It is the "country gentleman" is the BUSINESS FARMER. Here the efficient owners of farms do not differ socially or intellectually from the heads of factories or commercial houses. They are business men.

To help our readers solve scores of problems, both national and local, we spare no expense. We get and print up-to-the-minute and down-to-the-ground information and advice. Our experts are men in the field, the dairy, the orchard. They write sound common sense, and they write it clearly. To give you their practical experience we spend \$75,000 a year. We believe you want the benefit of all this. You can try it for 17 weeks for only 25 cents. This is solely a TRIAL offer--it will never be repeated.

Three Regular Weekly Departments, Alone Worth the Subscription Price

Women's Cares. Comforts, Clothes, and Cooking

Our departments for women appeal directly to the woman in the country. They include four regular features, all ably written: (1) Practical Talks by a country woman of experience on problems of the hired man and hired girl, training of children, pin-money, etc. (*The Country Gentlewoman*); (2) Foods and Cooking, country dishes, pleasing new recipes from East and West--preserving and canning; (3) The Rural Home--its furnishings and decorations; (4) Sewing--how to make clothes stylish yet practical--embroidery, laces, and knitting ideas.

How are Crops, and What are They Worth?

What crop to grow? When to sell it? These questions determine profits on most farms. THE COUNTRY GENTLEMAN employs a national expert on crop reports to write a weekly department on *The Crops and the Markets*, giving the changes in prices and the market demands. Also there are special articles telling how to put each crop on the market in prime condition so as to get the maximum price. No farmer who reads this department regularly, and supplements it with a local newspaper, can be ignorant of when and how to market his crop to get the greatest returns.

What is Your Congressman Doing?

The Presidential campaign, the State campaigns, involve to-day many issues of direct personal importance to farmers. You want a way to follow easily and accurately what the politicians are doing. That is what the *Weekly Congressional Calendar* in THE COUNTRY GENTLEMAN is for. It does it successfully, always with an eye for the agricultural interests. By it you can check up the votes of your own representatives in congress and legislature on things that mean dollars and cents to you.

Here are Three Important Special Series that Will Appear During These Four Months

Wiped Out by Fire

In New York State alone there were 5800 farm fires last year. They caused a loss of \$1,500,000. Most of them could have been prevented. Lightning caused 1800—many of these were preventable. We shall print a series of articles on fire prevention and protection covering (1) What farm fire losses represent and how they threaten the average farmer; (2) How to guard against fire; (3) How to put it out if it starts—up-to-date home fire-fighting apparatus; (4) The best kinds of insurance on buildings, crops, and livestock impartially compared; (5) Actual facts about farmers' mutual insurance companies that have *worked*. These articles will show you in a practical way how to strengthen your protection against the possible loss of your property or profits.

Good Marketing by Advertising

Six years ago a farm hand in a Western State rented some land and grew a crop of fine seed grain. Last year he sold over \$15,000 worth of pure-bred seed grains, and is known as one of the seed experts of the world. Judicious advertising did it.

A student in a leading agricultural college heard a lecture on advertising. He went home and prepared some small ads. for produce. In six weeks he sold for nearly \$1000 goods which might otherwise have brought less than \$400. The methods of these men and a dozen others will be told in our series on "Farm Advertising." It covers advertising of pure-bred livestock, seed grains, produce, dairy products and fruit. Several stockmen of national standing will contribute. All details explained.

What is Your Money Crop ?

If your farm were big enough, and the soil, climate, and market conditions varied enough for 30 crops, you would like to have 30 experts—one for each. But the cost would be too great. Most successful farming communities center attention upon a single crop adapted to the locality. To diversify or combine crops offers greater returns from year to year, but it is necessary to have one crop that you may promptly convert into cash to meet running expenses.

We are printing a series on "The Money Crop." The articles will be written by 30 experts—on wheat, corn, tobacco, cotton, hay, potatoes, pork, beef, milk, wool, and so forth. Each article will show the essentials in business management, soil, climate, and the returns which may be expected. They will include personal experiences.

Besides these we have frequent practical articles on poultry, livestock, the dairy, farm machinery, road building, the rural school, the church, the grange, farmers' clubs and other aspects of country community life; co-operative marketing; building and furnishing the house; a regular department on the scientific advance of agriculture and new inventions; wholesome fiction of country life, stories and verse; a letter-box and a strong editorial page that stands always for the interests of the farmer.

OFFER

Sixty thousand more farmers than a year ago are already buying THE COUNTRY GENTLEMAN at 5 cents a copy, or \$1.50 a year, the regular price. If you knew THE COUNTRY GENTLEMAN as they do you would be glad to pay that amount and more for your subscription.

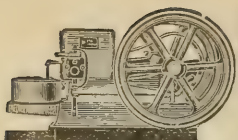
You know our other publications, THE LADIES' HOME JOURNAL and THE SATURDAY EVENING POST. We want you to know THE COUNTRY GENTLEMAN. The Curtis Publishing Company never gives premiums, bonuses or clubbing offers. But it is GOOD BUSINESS for us to get THE COUNTRY GENTLEMAN into your hands. You will judge for yourself. In order to give you a fair chance to see with your own eyes that it is everything we claim, we will send it to your home until February 1, 1913, for 25 cents. This one-half reduction in price is solely a trial offer for new subscribers. IT WILL NEVER BE REPEATED. Fill in and send the coupon opposite (or, if you wish to save the paper in which this is printed, write us a letter, giving clearly your name and address, enclosing 25 cents).

The Curtis Publishing Company, Philadelphia, Pa.

CUT OUT—MAIL TODAY

THE COUNTRY GENTLEMAN,
Independence Square, Philadelphia, Pa.
(Enclosed please find 25 cents, stamps or coin-Canadian please 40 cents.) Please send THE COUNTRY GENTLEMAN to the address below until February 1st, 1913, beginning with the next issue.

Name.....
Town.....
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60 Days to Try **BEATS** The Best

Engine You Ever Saw

—because it's the first quality engine of the land. The Witte is conceded the best engine in America. Made by E. H. Witte, master builder for 25 years. Ask Witte users. Any size from 1½ to 40 horsepower—all tested to ten per cent overload. 61 special advantages.

And You Now Pay Only Wholesale Price

We cut out dealers—give you their profit. Also give you full benefit of our natural gas well. No power expense—testing, heating, lighting fuel, all free.

Take a 60 day trial. Five year guarantee. Write for book, "How to Judge a Gasoline Engine", and complete catalog. Our wholesale factory prices will interest you mightily. Write NOW, telling us size engine you need.

WITTE IRON WORKS CO.
1931 Oakland Ave., Kansas City, Mo.

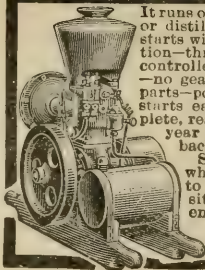
The WITTE
Cuts Gasoline
Bills in Half

APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mig. Chemists, 50 Church St., N. Y. City.

Dept. 6.

20 Reasons Why You Should Investigate the **SANDOW** Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county.

Detroit Motor Car Supply Co.
72 Canton Ave., Detroit, Mich.

HOW TO GET BETTER LIGHT FROM KEROSENE (Coal Oil)

Tests by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Guaranteed. Better light than gas or electric. To introduce the Aladdin we'll send a sample lamp on.

AGENTS WANTED

Experience unnecessary. Every home needs this lamp. One agent sold over 1000 on money back guarantee, not one returned. Another sold \$800 worth in 15 days. Evenings made profitable. Ask for agents prices and trial offer.

MANTLE LAMP COMPANY, 360 Aladdin Building, CHICAGO, ILL.

10 Days
TRIAL
Ask for
Particulars



FARM FENCE

41 INCHES HIGH

100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

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KITSELMAN BROS. Box 21 Muncie, Ind

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Freight
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Get the real facts of the Kalamazoo offer—the \$5 to \$40 saving—the \$100,000 Bank Bond Guarantee—shipment made the day order arrives. Learn about the new glass oven door ranges—and other Kalamazoo improvements though prices are lower than before.

Write for Free Book with stove facts and stove secrets. Ask for Catalog No. 416 Mention this paper.

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Furnace or Gas Stove Catalog
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400 STOVES in This
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Write a
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Stoves,
too



THE Coward Good Sense Shoe

Growing ankles that "turn in" are straightened and strengthened by the helpful support of this Coward Shoe. It also holds the arch in position and relieves and corrects "flat-foot conditions."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

FOR CHILDREN, WOMEN AND MEN.

Send for Catalog. Mail Orders Filled.

Sold Nowhere Else.

JAMES S. COWARD

264-274 Greenwich St., near Warren St., New York



HUNTERS! TRAPPERS! BUYERS! Make More Money. Read Hunter-Trapper 128-200 p. magazine about game, guns, dogs, furs, fish, roots, trapping secrets, 10c. Camp & Trail, 16-24 p. weekly, same subjects, raw fur reports, prices, 6c. A. R. Harding, Publ., Box 319, Columbus, O.

Kind Words from Our Customers.

The little advertisement in GLEANINGS gives me all the business I can attend to.
Winchester, Ind., Sept. 20. J. F. MICHAEL.

The A. I. Root Co., Medina, Ohio:

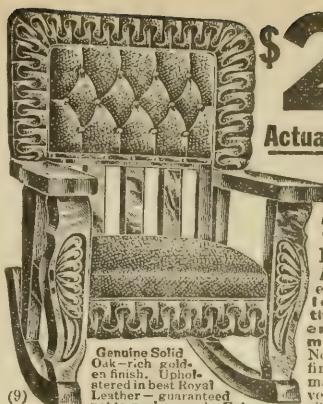
I have always bought the few supplies I need from your house, and am well pleased with the promptness of delivery and the quality of what you sent. Indeed, the recent years have brought me a decidedly finer quality of foundation.

Grahamsville, N. Y., Sept. 10. R. D. CARNEY.

The A. I. Root Co., Medina, O.:

In GLEANINGS you are asking for names that took GLEANINGS IN BEE CULTURE when it was run by wind mill. I have taken it since 1876. I was keeping bees then, and have 100 swarms now. Have 4000 lbs. comb honey this season. I was sixty-nine years old last April and took care of my bees alone.

Wyoming, N. Y., Aug. 27. T. S. GRISEWOOD.



\$2.98
**Actual Factory
Prices
At Last!**

Less than half dealer's prices—less even than the dealer himself must pay! Now, for the first time you may buy the very finest furniture direct from the maker and at a **STUNNINGLY SAVING!**

Genuine Solid Oak—rich golden finish. Upholstered in best Royal Leather—guaranteed not to peel or crack. Extra Large, roomy seat over oil tempered steel springs. Price only \$2.98. Order by No. 21.

The Last Middleman Now Cut Out!

For the past 30 years we have owned and operated the largest furniture factory in the world selling direct to the user. OVER 1,000,000 SATISFIED CUSTOMERS. No salesmen—manufacturers, agents, jobbers, wholesalers or retailers—not even one middleman's profit to pay.

30 Days' Free Trial We take all the risk ourselves. Send us only \$2.98, the net factory price of this rocker—use it for a whole month—then decide. If not perfectly satisfactory in every way, just return it and we'll refund all you paid with transportation charges both ways.

Write for Our Catalog—FREE!

Our magnificent catalog is free for the asking. Your choice of over 5,000 different bargains—beds, chairs, sewing machines; everything you need to beautify your home on a amazingly liberal plan. Send just your name and address to—

LINCOLN, LEONARD & CO., Station 4117 CHICAGO

SIX PER CENT DISCOUNT FOR OCTOBER CASH ORDERS

To those who buy now for next season, sending remittance with the order during the month of October subject to the conditions named below, we allow 6 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order, the discount may be deducted from the whole order, including these items which are otherwise excepted.

THE A. I. ROOT CO., MEDINA, O.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—White-clover extracted honey in 60-lb. cans. HENRY HETTEL, Marine, Ill.

12,000 lbs. white alfalfa sweet-clover honey, 7 cts. per lb.; 6¼ for the lot. T. H. WAAL, Nampa, Ida.

FOR SALE.—Extracted clover honey, \$10.50 per case of 120 lbs. M. ISBELL, Norwich, N. Y.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Fancy Michigan extracted honey in quantity and packages to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—White-clover and basswood comb and extracted honey; has a good flavor. D. H. WELCH, Racine, Wis.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY-PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—Finest quality new clover honey in 60-lb. tin cans. O. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

Very fine quality of raspberry-milkweed honey in new 60-lb. cans at 9 cts. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—New buckwheat extracted honey in 60-lb. and 200-lb. kegs. B. B. COGGSHALL, Rt. 12, Groton, N. Y.

Bronzed Honey Labels, 250, 50 cts.; 500, 80 cts.; 1000, \$1.10, postpaid. Send 2 cts. for samples. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Fine quality clover honey at 9 cts. in 60-lb. cans; also amber fall honey, good flavor and body, at 8 cts. in 60-lb. cans, two cases; sample, 8 cts. EDW. A. REDDOUT, Box 43, Lysander, N. Y.

Comb honey capped white in shallow frames, 12½ cts. per lb., f. o. b. here crated. Extracted amber in 60-lb. cans, \$6.00. Sample, 5 cts. JOHN W. CASH, Bogart, Ga.

FOR SALE.—Two carloads of choice sage honey by the can or case. Samples of honey and desirable California souvenir free for a stamp. C. W. DAYTON, Chatsworth, Cal.

Our fall crop of comb honey at \$3 per case of 24 sections, well filled, six cases to carrier; extracted, 8 cts. to 9 cts.; two sixty-pound cans to case. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—22 tons of honey, finest quality; raspberry, and a blend of raspberry and milkweed, raspberry and basswood, in new 60-lb. cans, two in case, at 9 cts.; whole lot 8½ cts. J. N. HARRIS, Mancelona, Mich.

FOR SALE.—White-clover and basswood extracted honey, blended in the extractor; put up in brand-new 60-lb. cans, 2 cans per case, at \$12 per case of 2 cans or more, F. O. B. Flint. Cash with order. This honey is the finest I have ever produced. L. S. GRIGGS, 711 Avon St., Flint, Mich.

Fine white and light amber alfalfa honey put up in any size of tin package, any quantity. DADANT & SONS, Hamilton, Ills.

RASPBERRY HONEY.—Our crop of raspberry honey this season is very fine—the best in quality I ever saw. It was left on the hives until it was all sealed, and thoroughly ripened by the bees. Thick, rich, and delicious. It is put up in new 60-lb. tin cans. Price \$6.00 per can. Large-sized sample by mail, 10 cts. Said 10 cts. may be deducted from any order sent for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Honey, good extracted. Quote, with sample. J. C. BULL, Hammond, Ind.

WANTED.—A minimum car of white or light amber extracted honey. J. W. GRIFFIN, Oenaville, Texas.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—No. 1 white-clover comb honey. Give quantity, description, and price wanted. Will pay cash or exchange bee-supplies. E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Honey wholesale. Would like to hear from those having comb honey in car lots to market. Heretofore we have at times sustained the market by buying heavily and holding, on one occasion carrying some 40 carloads three months. If you need us let us hear from you with particulars. THOS. J. STANLEY, Manzanola, Otero Co., Col.

WANTED.—Car of light-medium or dark-amber extracted honey in cases of two five-gallon cans. We prefer the light amber to the dark, but can use quite a quantity of either grade provided the flavor is mild. Our trade does not want a pronounced-flavored honey. Submit a two or four ounce sample and quote your best prices delivered to your railroad station.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight. G. F. STANTON, Buckingham, Fla.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & Co., Cincinnati, O.

For sale or exchange for income-bearing property, our entire business, 1500 colonies of bees and fixtures. Reason for selling, poor health. OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

New crop white-sweet-clover seed, 4 lbs. by mail, prepaid, \$1.12; 50 to 100 lbs., 15 c. per lb., hulled; unhulled, 3c. less. Alfalfa seed, same price. R. L. SNODGRASS, Rt. 4, Augusta, Kan.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Recleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

BEES AND QUEENS

FOR SALE.—25 colonies bees, fixtures, bee magazines. REV. EDWIN EWELL, Litchfield, Mich.

Our queens will please you. Price \$1.00 each. C. W. PHELPS & SON, Binghamton, N. Y.

Choice warranted golden Italians ready, \$1.00. J. B. CASE, Port Orange, Fla.

FOR SALE.—200 colonies bees. J. O. BAIRD, New Plymouth, Idaho.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

FOR SALE.—25 colonies of bees, a quantity of hives, comb-supers, and other supplies. If you want to save money, write. LEON C. WHEELER, Barryton, Mich.

Three-banded Italian queens. Best honey-gatherers. Untested, 50 cents each. Can fill orders promptly. No disease. W. D. ACHORD, Fitzpatrick, Ala.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white, sheeted lids; each neat, modern, and full of stores—any time. JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan. Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free. W. H. RAILS, Orange, Cal.

FOR SALE.—800 colonies of Italian bees, more or less, situated in five yards; all in good condition, on this beautiful island of Jamaica, a land of perpetual sunshine; flowers nearly the whole year round; good investment for a practical up-to-date beekeeper to take hold of now. Write for further particulars. DAVID MARCHALLECK, Morant Bay, Jamaica.

FOR SALE.—Italian queens bred from the best honey-gathering strains obtainable. Untested, 75 cts.; select, \$1.00; tested, \$1.25; select tested, \$1.50. Nuclei without queen, one frame, \$1.50; two frame, \$2.00; three frame, \$2.75. For queens and nuclei in quantity lots, and bees by the pound, write for prices and circulars. Virgin queens from my best breeders, 40 cts. each; three for \$1.00. ROBT. B. SPICER, Wharton, N. J.

WANTS AND EXCHANGES

WANTED.—To buy bees in Southern California. BEEKEEPER, Lock Box 16, Surrey, Cal. 39935.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey. ERNEST W. FOX, Clint, Texas.

WANTED.—To exchange Root bee supplies, either for money or honey. Catalog. E. W. PEIRCE, Zanesville, Ohio.

HELP WANTED

WANTED.—Honey salesmen. Our men earning \$60 per month, salary and commission. BULL & CAVANAGH, Hammond, Ind.

WANTED.—Apiarist or helper who is willing to invest \$250 in an apiary. We allow you wages and percentage of crop, as manager. Particulars on request. APIARIST, Sawtelle, Cal.

WANTED.—Man and wife to work on a small farm and care for bees. Pleasant location, near Syracuse, N. Y. Only people of good character and Christian homes need apply. Man to have full charge; 20 acres. H. C. MILLS, 505 Emerson Ave., Syracuse, N. Y.

REAL ESTATE

FOR SALE.—320-acre farm; half-trade; fine land. T. J. GREENFIELD, Hickory Ridge, Ark.

POULTRY

BUTTERCUPS.—We have some fine young stock for sale. For prices, write RIVERVIEW POULTRY FARM, Union City, Mich.

Ringlet barred Rocks, choice breeding cockerels for sale. Correspondence cheerfully answered. W. H. PORTER, Rt. 23, Sandy Lake, Pa.

Runners, hundreds, light fawns, also dark penciled, white egggers; \$1.00 and up. R. O. DICKSON, Box 28, La Harpe, Ill.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS, American Standard light fawn, and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me. C. O. YOST, Rt. 4, Box D, Winchester, Ind.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—Typewriter—standard machine; very cheap; good shape. W. A. EHLERS, Carthage, Mo.

FOR SALE.—Cadillac runabout, \$100; A1 condition. W. N. MILLER, Dodgeville, Wis.

Colorado Beekeepers' Directory is ready. Join the Association (\$1.00) and ask for copy. WESLEY FOSTER, Boulder, Col.

PIGEONS! PIGEONS! Thousands, all breeds; many satisfied customers everywhere; start with our money-making pigeons. Large free illustrated matter. PROV. SQUAB CO., Providence, R. I.

WANTED.—Copies of GLEANINGS in good condition, for Jan. 1, 1912, and for Feb. 15, 1912. Subscribers having perfect copies for either of these dates will please notify us by post card, if they wish to exchange either number for a two months' credit on time of subscription. THE A. I. ROOT COMPANY, Medina, Ohio.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is Northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices

The fall convention of the Connecticut Beekeepers' Association will be held at the Y. M. C. A. building, Middletown, Saturday, October 26, 1912, at 10:30 A. M. A pleasant and profitable meeting is assured.

Hartford, Ct.

JAS. A. SMITH, Sec.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

UNTESTED QUEENS.

One of our breeders reports that he will be able to supply us about a hundred fine queens this week. These are raised from our choicest stock and we will waive the usual October price and fill orders for these at \$1 each, \$10 for twelve, \$22.50 for twenty-five, while the present stock lasts. This will wind up our queen-rearing operations for this season, but offers an exceptionally good chance to get some fine stock to winter. No orders filled at these prices when these hundred queens are gone.

HONEY-TUMBLERS TO RETAIL AT 10 CENTS, FILLED WITH HONEY.

We buy tumblers by the carload for packing honey for the retailers to sell at 10 cents each. Those we use hold about 7 ounces of honey, and have our label lithographed on the cap. The tumblers as they come through the factory vary somewhat in size, and in selecting them there will be some a trifle too large or too small to fit our lithographed caps. These are fitted with plain tin caps made a little larger or smaller as the case may be, and packed in barrels of 40 dozen each. We offer these for sale at a special price of \$6.00 per barrel, which is only 15 cts. per dozen. We can ship either from Medina or Clarksburg, W. Va. Five-barrel lots at \$5.50.

NEW POUND SCREW-TOP JAR.

The factory which has been supplying our No. 25 jar for years has discontinued making them, so that, when present stocks are exhausted, we shall not continue furnishing the same jar except on special order from another factory which also makes them. We are arranging for another style half an inch taller and one-fourth inch smaller in diameter than the No. 25, a more desirable shape, with lacquered tin top and wax-paper liner. These, put up in reshipping-cans of two dozen each, will sell for 85 cts. a box; \$4.80 for 6 boxes. Ten-gross lots, or 60 boxes, at 75 cts. per box. The same jar, packed a gross in a crate, will sell for 50 cts. a gross less. The glass is clear, and ought to have a large sale at these prices.

SWEET-CLOVER SEED.

We now have a good supply of new seed, all of which so far has come to us with the hulls on. As we go to press we are arranging to put it through a clover-huller so that we can furnish the seed hulled, the form in which most people prefer it. Our prices on new seed will be as follows:

PRICE LIST OF SWEET-CLOVER SEED.

Hulled white biennial (*Melilotus alba*), 1 lb., 22c.; 10 lbs., \$2.00; 25 lbs., \$4.75; 100 lbs., \$18.00.

Unhulled white ditto, 1 lb., 17c.; 10 lbs., \$1.50; 25 lbs., \$3.50; 100 lbs., \$13.00.

Hulled yellow biennial (*Melilotus officinalis*), 1 lb., 26c.; 10 lbs., \$2.40; 25 lbs., \$5.75; 100 lbs., \$22.00.

Unhulled yellow ditto, 1 lb., 21c.; 10 lbs., \$1.90; 25 lbs., \$4.50; 100 lbs., \$17.00.

Hulled yellow annual (*Melilotus Indica*), 1 lb., 14c.; 10 lbs., \$1.20; 25 lbs., \$2.75; 100 lbs., \$10.00.

Our seed has been tested for purity and germination by the U. S. Department of Agriculture testing station, and averages over 96 per cent for purity.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2½x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2½x6 hexagonal thin-super mill in fair shape. Price \$10.00.

No. 0151, 2½x6 hexagonal cell extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2½x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price \$10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price \$12.00.

No. 0160, 2½x6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0164, 2½x6 hexagonal thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½x6 hexagonal extra-thin super mill in fair condition. Price \$11.00.

No. 0166, 2½x6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, 2½x6 hexagonal extra-thin super mill in fair condition. Price \$11.00.

No. 0168, 2½x6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0176, 2½x6 extra thin-super mill in fair condition. Price \$12.00.

No. 0180, 2½x6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0181, 2½x10 hexagonal medium-brood mill, in very good condition. Price \$18.00.

No. 0182, 2½x12 round-cell medium-brood mill, in good condition. Price \$20.00.

No. 0183, 2½x6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0184, 2½x10 hexagonal light-brood mill, in very good condition. Price \$18.00.

No. 0185, 2½x10 hexagonal medium-brood mill, in very good condition. Price \$18.00.

No. 0187, 2x10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

SPECIAL NOTICES

A. I. ROOT

SEED CORN THAT IS NOT ONLY "HOMESICK"
BUT HAS "HEART DISEASE" AS WELL.

In Special Notices for October 1 I suggested that each farmer should grow his own seed corn, to avoid swindles such as our friend mentioned. He has just replied further as follows:

Mr. Root:—The corn was not only "homesick" but it had "heart disease."
Tuscola, Ill., Oct. 5.

JOHN HUNT.

Now I want to say just a word further. So far as possible do not depend on anybody for your seed corn. Grow it yourself if you are going to be up with the times and up to date; and not only that, but test every single ear, and make this test only a little while before planting-time, so you will know you have done your part in furnishing seed that is all right in every respect. "Whatsoever a man soweth, that shall he also reap." The very cornerstone and groundwork of good corn is *good seed*; and we might say the same with every thing else that a farmer grows; and be particularly sure that your seed corn does *not* have "heart disease."

FLORIDA LAND SPECULATIONS, ETC.

In our issue for June 1, page 356, A. W. Foreman criticised us severely for accepting advertisements from the Seaboard Airline Railway Co. On page 422, July 1, that company replies; but friend Foreman is not quite satisfied to have the matter dropped there. Below is his protest, somewhat abbreviated.

I want right here to confess that my language was somewhat intemperate, and I beg your pardon for it, and promise not to do so any more. But I do not retract the general charge that the character of the advertisement is highly objectionable.

Let me illustrate. I at one time under special conditions, and with a special kind of wheat, produced on our farm near this city fifty bushels of No. 2 wheat per acre. Suppose I were a real-estate agent, and should advertise that Illinois soil produces fifty bushels of wheat per acre. That would not be a lie by direct statement, but it would be a base lie by implication, because the average yield of wheat in Illinois is only a fourth that.

Now you must know that I have in the above sketched the usual character of real-estate advertising, as practiced by a large per cent of real-estate agents. I hope I have made myself plain, and that there can be no mistake about my meaning.

Let me say in conclusion that I still have faith in the good intentions of GLEANINGS, and hope that this little scrap will be instrumental in a small degree, at least, in moral uplift.

White Hall, Ill., Sept. 25.

A. W. FOREMAN.

I can only add that I have looked over the Seaboard Airline advertisement once more, but can not agree that it should be rejected. It is well known that railways, especially those running to new localities, are anxious to have settlers move in; and,

although they may not say so, it is generally understood that their advertisements refer to the *possibilities* rather than to the general run of results obtained where settlers are urged to go.

CRITICISING HASTILY WITHOUT LOOKING INTO THE CAUSE.

Your experience with the crabbed porter reminds me of an experience of my own. I got on a Pennsylvania train between Cincinnati and Pittsburg to go to New York. As evening approached I noticed how crabbed and uncivil the porter was, and asked, in the slang of the day, "Jim, what's chawing you? Can't you speak civil?" He then told me that he had had nothing to eat that day. There was some sort of meeting in the East, and to meet this travel the company had been concentrating cars at Cincinnati, St. Louis, and other gateways, and he had been at Cincinnati until he ran out of money. As his car was "dead" on a storage track he got no tips. I "staked" him, and after we passed an eating-station his disposition materially improved. Get at the "cause" and you can sometimes remove the "effect." A scolding or "cussing out" would not have made that porter pleasant.

Newport, Ark., Oct. 1. A. M. VAN AUKEN.

The above incident brings to mind a little stanza that I learned over forty years ago. I was studying shorthand, and I worked so long in deciphering the words, written in shorthand, that it fixed itself in my memory.

Think gently of the erring;

You may not know the power

With which the dark temptation came

In some unguarded hour.

The Savings Deposit Bank (Medina, O.)

says:

BANKING BY MAIL A SIGN OF MODERN PROGRESS.

In the old days, when there were no steam roads, no daily or even weekly mails, the greatest hindrance to progress was the inability to communicate readily with other parts of the world.

The tradesman or manufacturer in one community, though his wares might be of ever so high a quality, could not dispose of them to any appreciable extent outside of his own village, town, or city.

As soon as transportation facilities became more efficient, commercial advancement was marked. Today the manufacturer of Maine sells his goods and delivers them with comparative ease to the merchant or consumer in the distant cities of California.

Just as the United States mails have brought together the producers and consumers in all lines of business, so the mails nowadays enable banks to serve not only people in their own communities but also depositors throughout the country.

Banking by mail is a prominent feature in the service rendered by the Savings Deposit Bank Company of Medina. That institution protects the funds of people in nearly every State of the Union.

These depositors who forward their funds to the bank by mail find that banking by mail is not only safe but also particularly convenient. When they forward their deposits through the mails the money is protected by the United States Government until it reaches the bank; and this plan makes it unnecessary for them to go personally to a bank to make their deposits, for they can simply enclose the money in the form of checks, drafts, or post-office money orders in an envelope, and mail it, or they can send the currency in a registered letter. Mr. E. R. Root, of the A. I. Root Company, is Vice-President of The Savings Deposit Bank Company of Medina, Ohio, which has been particularly successful in serving people throughout the United States by this banking-by-mail plan.

If I Bought a Car

By R. E. Olds, Designer

Here are some things I'd require if I bought a car. I've learned their need by building 60,000 cars.

I could save, I judge, \$200 per car by building Reo the Fifth without them. But you might lose three times that by the lack.

Economy

I would want economy of upkeep. That would mean big tires.

My cars have always been over-tired, according to usual standards. But on Oct. 1st I added 22 per cent to the tire size on Reo the Fifth. Now the tires are 34x4.

Tire makers say that 22 per cent will add 65 per cent to the average tire mileage.

To further save on tires and fuel I would want a light, strong car.

That means drop forgings, costing twice what castings cost. *In Reo the Fifth I use 190.*

And I add considerable cost to the body to save another 50 pounds.

Safety

I would look out for safety, above all else, in any car I bought.

In Reo the Fifth I use Chrome Nickel Steel, Vanadium Steel and Manganese Steel. Then each lot of steel is analyzed twice to make sure of the needed strength.

I insist on big margins of safety. Every driving part in Reo the Fifth is made sufficient for a 45-horsepower car.

I use 14-inch brake drums for quick, sure control.

Durability

In a car of my own, bought for many years' use, I would look for immense durability.

Roller bearings cost *five times as much* as the usual ball bearings. But they save many times their cost.

In Reo the Fifth I use 15 roller bearings—11 of them Timken, 4 Hyatt High Duty.

I use a machine for testing my springs, and I require them to stand 100,000 vibrations.

I test my gears in a crushing machine, to prove that each tooth will stand 75,000 pounds.

Each engine is tested 20 hours on blocks, and 28 hours in the chassis.

I spend about \$10 extra for a centrifugal water-pump, over the cost of syphon.

The various parts of this car get a thousand inspections, so errors and weaknesses can't creep in. My 190 drop forgings do away with the hidden flaws often found in steel castings.

I limit my output to 50 cars daily, so the men are never rushed.

Such cars don't wear out.

Comfort

I would never buy a car which skimped on comfort, for the pleasure of motoring depends on it.

For comfort in driving I doubly beat my carburetor. That saves the troubles with low-grade gasoline. I use a \$75 magneto to save ignition troubles. In Reo the Fifth you can start on magneto.

I use a new type of center control, so all the gear shifting is done by moving a lever only three inches in each of four directions. You would not go without it for \$100 after you try it out.

Both brakes are operated by foot pedals, so no levers are in the way of the driver. And the driver sits on the left hand side, close to the cars he passes.

For comfort in riding I use big springs—seven-leaf springs, two inches wide, with rear springs 46 inches long. They are Sheldon springs.

I give a long, wide car, with ample room. I give them deep cushions, built so they never sag.

I use genuine leather in upholstering and fill it with the best curled hair.

Finish

Then I want for my own use a beautiful car. So I build this car with an impressive body, and finish it with 17 coats. I use electric side lights, and build them flush with the dash.

I give to every detail that final touch which adds to one's pride in a car. I abominate petty economies.

Men's Faith in Me

After 25 years, the best I have gained is men's faith in the cars I build. And my chiefest aim is to justify that faith.

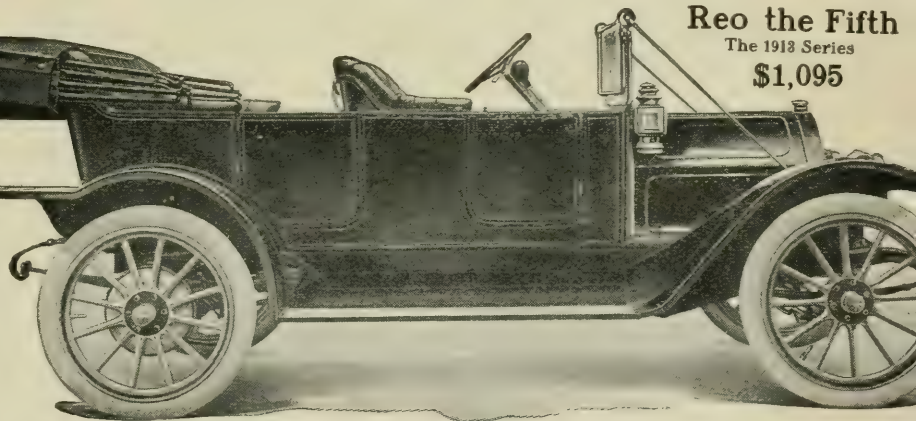
I could easily save \$200 per car by skimping on things which buyers don't see. That slighted car at a startling price would pay me more profit than Reo the Fifth. And, by talking equipment—the things one sees—I could sell more cars beyond any

doubt, than by dealing with hidden worth.

But my ambition doesn't lead that way. I would never buy a car which the makers skimped, and I never shall try to sell one.

Enough men will always want well-built cars—generous, roomy, economical, safe—to keep this factory busy. And those men will always say good words about my engineering.

30-35
Horsepower
Wheel Base—
112 Inches
Tires
34x4 inches
Wheels
34 inches
Demountable
Rims
Three Electric
Lights
Speed—
45 Miles per
Hour
Made with
2 and 5
Passenger
Bodies



Reo the Fifth

The 1913 Series

\$1,095

Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank for headlights, speedometer and self-starter—all for \$100 extra.

R. M. Owen & Co.

General Sales Agents for

Reo Motor Car Co., Lansing, Mich.

Canadian Factory, St. Catharines, Ont.



WE can
do no
better for
the children
or for
ourselves
than to take

The Youth's Companion

Only **4** Cents
A Week

Something new every week, something inspiring every week, something to read aloud and talk over every week, something good to treasure up in the memory every week.

Seven Stunning Serials and 250 Other Stories

The titles below indicate that this is one of the strongest groups of serials ever offered to Companion readers:

THE SHOVEL-MAN, A Tale of the Panama Canal,
ON MISERY COVE, A Story of the Maine Logging-Camps,
THE WILDERNESS CASTAWAYS, A Tale of Hudson Bay,
SARAH BREWSTER'S RELATIVES, A Home Story,
THE COLONEL'S EXPERIMENT, A Story for Girls,
THE VISION, A Tale of Chicago Business Life,
HIS FATHER'S SON, A Story of "St. Timothy's,"

RALPH D. PAINE
HOLMAN F. DAY
DILLON WALLACE
ELIA W. PEATTIE
EDITH BARNARD DELANO
GARDNER HUNTING
ARTHUR STANWOOD PIER

The best expert advice on baseball, football, and other great games and sports—sprinting, hockey, fancy skating. A department for girls suggesting profitable occupations, hints for dress, etc. For the family, recipes for dainty dishes, household devices, etc.

SEND A POSTAL FOR THE FULL ANNOUNCEMENT FOR 1913.

HOW TO GET THE FREE ISSUES

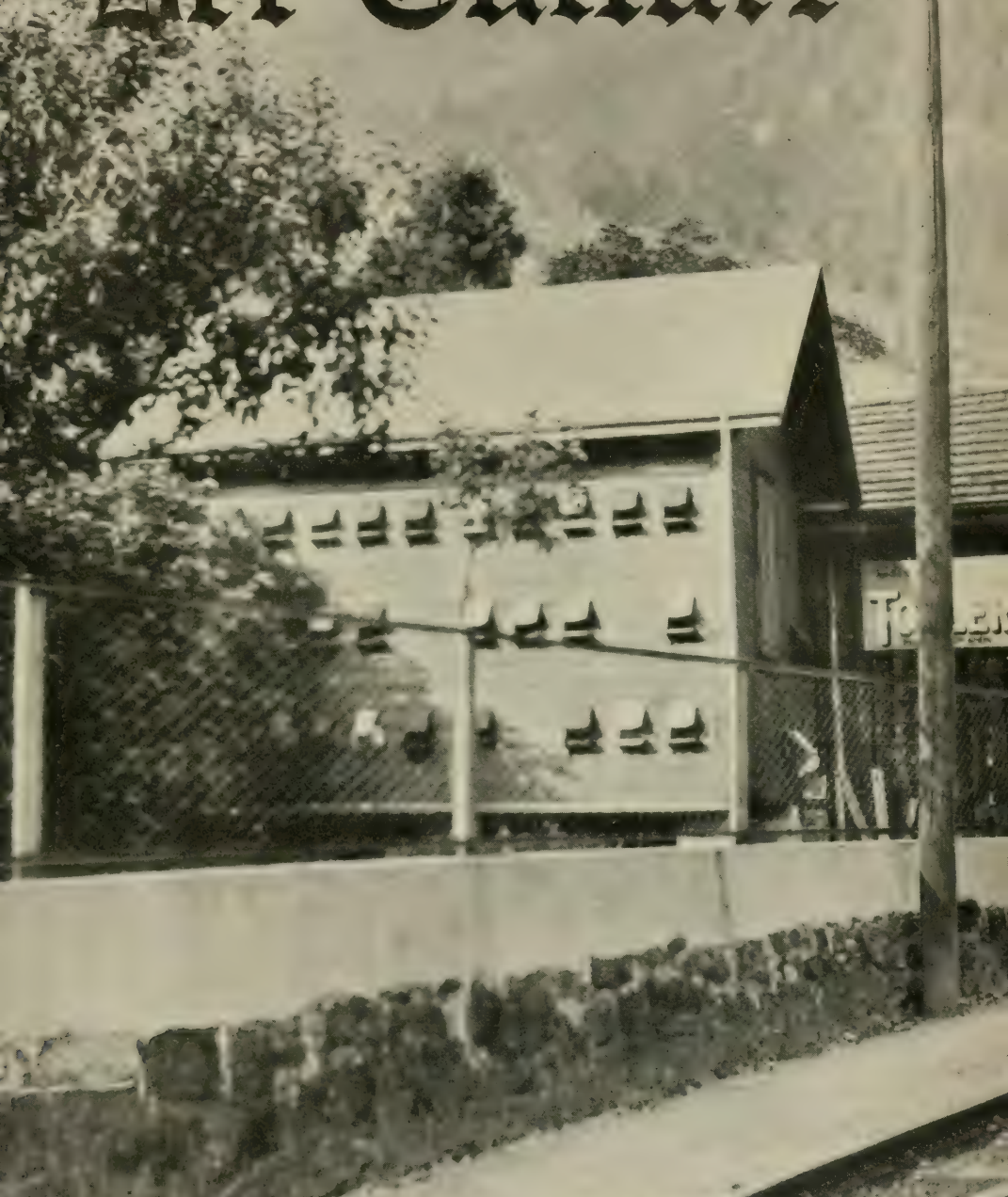
Every new subscriber who at once cuts out and sends this coupon (or mentions this publication) with \$2.00 for the 52 issues of The Companion for 1913 will receive

1. All the issues for the remaining weeks of 1912 FREE, including the beautiful Thanksgiving and Christmas Numbers.
2. The Companion Window Transparency and Calendar for 1913 FREE—the most exquisite novelty ever given to Companion readers.
3. Then The Companion every week until January, 1914—long hours of companionship with the wise, the adventurous, the inspiring—all for less than 4 cents a week.

THE YOUTH'S COMPANION, BOSTON, MASS.

HD 50

Cleanings in Bee Culture



VOL. XL. NOV. 1, 1912 NO. 21.

HONEY LABELS

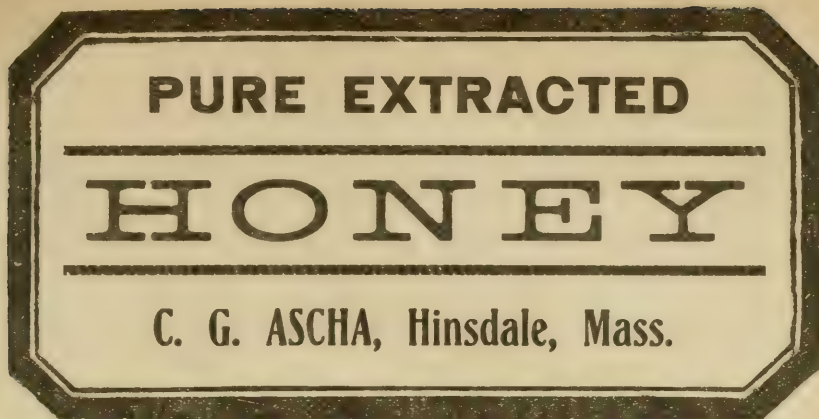
There is nothing that adds more to the attractiveness of a honey package than a neat label carefully worded and of the proper style. The guarantee of purity by the producer put on every package he offers for sale is the best protection he can get from the stories of adulteration that injure the sale of his product.

For glass packages a small label is generally preferred, while for tin, one that laps around the package is considered best. We supply both gummed and ungummed labels. We recommend the ungummed, however, for they adhere more readily when pasted on a package, and are not affected by changes in the atmosphere as are the gummed.

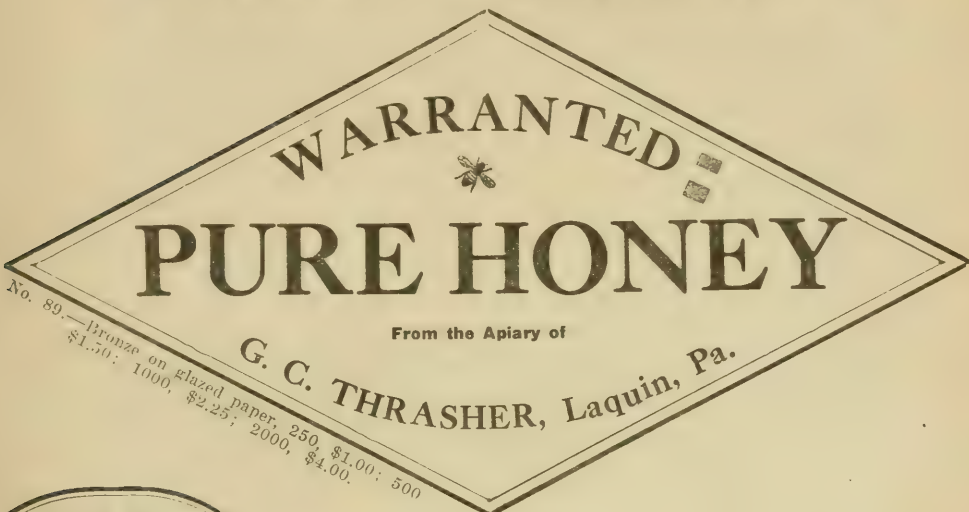
We give on the opposite page a few illustrations of some of our stock patterns. These are printed, some of them in two or more colors, some in bronze on glazed paper, and some in black on glazed paper. To get a very adequate idea of these you ought to see samples printed on regular label stock in the proper colors. We have a catalog which shows just what we can furnish in this line, and we shall be glad to send it on request.

Just now we can give very prompt attention to orders for this label work. We can furnish special labels too if you tell us what you want. Of course the price is higher than for our regular patterns; but if you are buying them in very large quantities you may want something to suit your individual tastes. Let us do your label work for you, for we can guarantee satisfaction.

The A. I. Root Co., Medina, O.



No. 90.—Bronze on glazed paper, same price as No. 89.



Wording on all labels changed to suit. Labels trimmed to margin. Above prices are on ungummed stock.



No. 94.—Bronze on glazed paper, 250, 90c.; 500, \$1.50; 1000, \$2.00; 2000, \$3.50.

No. 91.—Bronze on glazed paper, 250, \$1.00; 500, \$1.50; 1000, \$2.25; 2000, \$4.00.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8. Beeswax, 30.

Boston, Oct. 21.

BLAKE-LEE CO.

COLUMBUS.—Receipts are light, and demand good. Colorado double-deck for 24-section case, \$3.60; New York, Ohio, and Michigan fancy, per lb., 17½; No. 1, per lb., 16½; No. 2, per lb., 14½. Columbus, Oct. 17. THE EVANS & TURNER CO.

INDIANAPOLIS.—Extracted honey of finest quality in five-gallon cans is selling at 10½ to 12, according to quantity. No. 1 and fancy white comb sells for 16 to 17. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Oct. 21. WALTER S. POWDER.

SCHENECTADY.—Colder weather has stimulated the demand for honey, and our stock has been much reduced as a result, but with no advance over last quotations in prices. Both comb and extracted buckwheat are scarce, and most of the stock offered as buckwheat is really mixed with other grades. We are unable to fill orders for straight buckwheat extracted.

Schenectady, Oct. 19. CHAS. MCCULLOUGH.

ALBANY.—The honey market is steady, with some improvement in consumption. The crop is light, especially of buckwheat; but the output of beekeepers increases yearly, so there will be honey enough for all. We quote fancy white, 16; No. 1, 15; mixed, 14; buckwheat, 13 to 14. There is a rather better demand for extracted than usual at this season; buckwheat, 7½; amber, 8 to 8½; white, 9 to 9½. Beeswax brings 30 to 32.

Albany, Oct. 17.

H. R. WRIGHT.

KANSAS CITY.—The receipts of both comb and extracted honey are more liberal, the demand very good. With cooler weather we look for a still better demand. We quote No. 1 white comb, 24-section cases, \$3.25 to \$3.35; No. 2 ditto, \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 8½; extracted amber, 6 to 7. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Oct. 18.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

The Best Time to Buy Supplies

The season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow BEFORE it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—5 per cent for cash orders sent in November, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dep't.

H. H. ROOT
Ass't Editor.

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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A Business Proposition.

Your money in the savings bank is drawing 3 per cent, or at most 4 per cent interest. Here is an opportunity to invest it at 12 per cent—8 per cent more than it is now earning.

In most localities this has been a good season for honey and for making increase. Prospects were never better than for the coming season, and you are almost certain to be needing supplies in the spring. If you wait until the first of April or later, you must pay full catalog prices. If your order and remittance are sent in during November, a discount of 5 per cent will be allowed, five per cent on money invested for five months is equivalent to 12 per cent per annum, figured for five months' time. It looks good, doesn't it? Why not effect this saving by ordering now, and thus also secure the peace of mind that will result from having your supplies all ready when you need them most? Your order can be sent in now, and the goods will be shipped at any time to suit your convenience.

Best goods, best service, best treatment, are insured by sending your orders to OHIO'S BEE-SUPPLY CENTER—special headquarters for beekeepers in Ohio, West Virginia, and Western Pennsylvania. If you haven't a catalog, ask for it.

EDMUND W. PEIRCE
136 West Main St., Zanesville, Ohio

Honey reports continued from page 2.

CINCINNATI.—The demand for comb and extracted honey is fair, with a good supply. No. 1 white comb honey sells in large lots at \$3.00 per case, 24 sections; there is no demand for off grades. White extracted honey in 60-pound cans is selling from 9½ to 10 cents; light amber, in barrels, 7 to 7½; in 60-pound cans, 8 to 8½. Beeswax, fair demand, sells at \$33.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, Oct. 17.

C. H. W. WEBER & CO.

BANKING BY MAIL

For the benefit of those who can not call at the bank to transact their financial affairs, this institution has established a "Banking by Mail" plan which is rapidly growing in favor.

All that is necessary to open an account is to send your money to us by registered letter, check, money order, or draft, and a pass-book will be sent you immediately.

Further information will be gladly furnished upon request.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS

A. T. SPITZER, Pres.

E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier

The Bank that Pays 4 per cent

ZANESVILLE.—Arrivals of honey are not heavy but are about sufficient to meet the present demand. For the next month or six weeks there should be a pretty good movement, but after that time, during and succeeding the holiday season, the demand is usually light. In small lots to retail grocers 18 to 19c is being received for best grades of white comb, prices being shaded somewhat on quality orders. White extracted in 60-lb. cans is quoted at 9½ to 11c, according to quantity. Producers are receiving for beeswax 28c cash, 30 in exchange for supplies.

Zanesville, O., Oct. 22.

E. W. PEIRCE.

Is Your Association among this Lot of Live Ones? If Not, Why Not?

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Burton N. Gates, Amherst, Mass.
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MICHIGAN—E. B. Tyrrell, 230 Woodland Ave., Detroit, Mich.
MINNESOTA—C. E. Palmer, 1024 Miss. St., St. Paul, Minn.
NEW JERSEY—E. G. Carr, New Egypt, N. J.

Write me for particulars as to how your Association can become a National Branch, and how you as a member can have Branch benefits, National benefits, and a subscription to the REVIEW, all for \$1.50.

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PECOS VALLEY—Henry C. Barron, Hagerman, New Mexico
PENNSYLVANIA—H. C. Klinger, Liverpool, Pa.
TWIN FALLS—C. H. Stimson, Twin Falls, Ida.
TENNESSEE—J. M. Buchanan, Franklin, Tenn.
TEXAS—Wils. C. Collins, Box 154, Goliad, Tex.
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WISCONSIN—Gus Dittmer, Augusta, Wis.

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for conventions.
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your convention.

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E. B. Tyrrell, Secretary,
230 Woodland Avenue. - - - Detroit, Michigan.

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CIRCULATION 35,000.

Issued semi-monthly.

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NEW CROP HONEY Both Comb & Extracted

Are you looking for a market? New York is as good as any. We handle on commission and buy outright. Write us before disposing of your honey.

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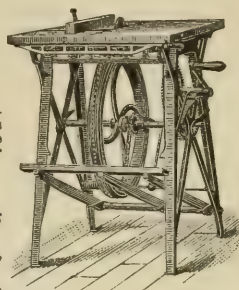
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Send for illustrated catalog and prices. Address

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Write for price on comb or extracted honey. Catalog of every thing a beekeeper uses, free.

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5 Per Cent

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Consignments solicited. Established 1875.

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AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS



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LaBoga, Ind., Aug. 6, 1902.

Walter S. Pouder, Indianapolis, Ind.

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ORDER ON LOW MARKET



Save 5 per cent
in November

For November only, we will offer you the liberal discount of five per cent on any bee supplies ordered during this. Now is the time to check up for the coming season. Have your bee books ready before the year goes. Don't wait till then. Ask for

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To write for further information.

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

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A. G. WOODMAN CO., GRAND RAPIDS, MICH.

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For years we have followed the example of the factory, and allowed our customers the benefit of the discounts offered by the Root Company for orders placed during the fall months for supplies for use the following season. This discount for November is 5 per cent for cash with orders, and diminishes one per cent per month as the season advances. We are sure many of our beekeeping friends will want to take advantage of this discount, not only because of the actual cash saving, but because of the convenience of getting goods before the rush of the busy season.

The Goods We Handle

We have said so much about the quality of Root's goods, and they are already so well known by beekeepers, that it hardly seems necessary even to mention the fact, except to remind you that we carry always a full and complete stock of Root's goods only. If you have tried others and they haven't given just the satisfaction they should, send us a trial order this season. For quality of material and accuracy of workmanship you will find them unexcelled.

Our Service

Each season we aim to make some improvement in the service we can give our customers. We aim to keep our stocks always complete, and to allow no order, large or small, to drag through our establishment. The shipping facilities at our command enable us to get goods started to you by direct routes at once. Whether your order is large or small it will have the most careful attention at our hands from the time it reaches us until the goods are in your hands.

Full information on any point regarding beekeeping in the Southwest cheerfully given on request.

Toepperwein & Mayfield

Corner Nolan and Cherry Streets

San Antonio, Texas

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USE THIS COUPON.

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Name _____

Address _____

Don't forget extra postage for Canada or foreign countries.

The season for honey is drawing to a close and you will now be in need of

SHIPPING - CASES

We carry them in stock at Syracuse, N. Y., and can make prompt shipment, having just purchased a motor truck for delivering goods to the railroads. We have heretofore depended on a truckman, who did not always happen to be on hand.

THE A. I. ROOT COMPANY,

Syracuse, N. Y.

**Water White
Alfalfa Honey**

**Light Amber
Alfalfa Honey**

**Light Amber
Fall Honey**

In any size quantities, in any size packages. If your honey crop is short, and you want to supply your regular trade, write to us for prices. We are sure that we can supply what you want at prices you can pay. Five cents for a sample of any kind desired.

We want your BEESWAX to work into

DADANT'S FOUNDATION

or will pay cash for it in exchange for goods. Five per cent discount on foundation and bee supplies during November. It will pay you to order early.

DADANT & SONS, Hamilton, Ill.

One of
the
400Cash
or
Credit\$5 to
\$40
SavedBrilliant
Oak Heater**"A Kalamazoo"**Trade Mark
Registered**Direct to You**And
Gas
Stoves
Too**Shipped Same Day Order is Received**

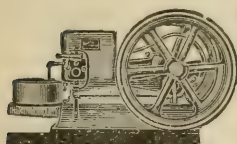
It is not only the saving of money that has given us 200,000 delighted customers. It's the greater beauty, convenience, fuel economy and durability of every Kalamazoo Stove or Range. Also our prompt delivery and liberal treatment.

Write for Catalog of 400 Stoves and 30 Days' Free Trial

Don't pay the middleman \$5.00 to \$10.00 extra. Let us save you that much. Return a Kalamazoo after a year's use if our claims are not true. What dealer will do that? Send postal now for Catalog No. 416, and please mention this paper.

Kalamazoo Stove Co., Manufacturers, Kalamazoo, Mich.

Ask for Furnace or Gas Stove Book too, if interested.

**60 Days
to Try****BEATS
The Best****Engine You Ever Saw**

—because it's the first quality engine of the land. The Witte is conceded the best engine in America. Made by E. H. Witte, master builder for 25 years. Ask Witte users. Any size from 1½ to 40 horsepower—all tested to ten per cent overload. 61 special advantages.

**And You Now Pay Only
Wholesale Price**

We cut out dealers—give you their profit. Also give you full benefit of our natural gas well. No power expense—testing, heating, lighting fuel, all free.

Take a 60 day trial. Five year guarantee. Write for book, "How to Judge a Gasoline Engine", and complete catalog. Our wholesale factory prices will interest you mightily. Write NOW, telling us size engine you need.

WITTE IRON WORKS CO.

1931 Oakland Ave.,

Kansas City, Mo.

**The WITTE
Cuts Gasoline
Bills in Half**

**Test an "IMPERIAL" 30
Days
In Your Own Home at OUR RISK****The Exclusive Feature
Range:** Odor Hood, Stone Oven
Bottom, Ash Sifter.

Wonderful Fuel Economizer—
Splendid Baker. NO MIDDLE-
MAN'S PROFIT. DIRECT
FROM FACTORY TO HOME
AT FACTORY PRICE.
FREIGHT PREPAID. 365-DAY
GUARANTEE. Credit if de-
sired. WRITE TODAY for
Money-Saving Catalog of Ranges
and Heaters.

THE IMPERIAL STEEL RANGE COMPANY
340 STATE STREET, CLEVELAND, OHIO**FACTS!**

—plain facts about the worth of a farm engine are what you want to know before you do any buying. That's what I give you in my big engine book.

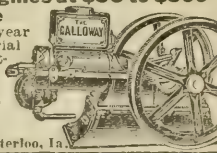
My big book tells you all you ought to know about farm engines, what you should pay for one, how to tell real quality. Also tells how I sell my

**1913 Galloway Engines at \$50 to \$300
Saving in Price**

besides giving you 5-year
guarantee, 30-day free trial

—and lowest price quoted
on efficient, durable
engine—any size. Get
book and 1913 offer now.

Wm. Galloway, Pres.
WM. GALLOWAY CO.,
1635 EY Galloway Sta., Waterloo, Ia.

**MAKE YOUR HENS LAY**

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain, and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S Latest-model BONE-CUTTER

cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on 10 Days' Free Trial. No money down. Send for our free books to-day.

F. W. MANN CO., Box 37, MILFORD, MASS.

**Free
Book
Tells
How**



RHODES DOUBLE CUT PRUNING SHEAR

Pat'd June 2, 1903.

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

HOW TO GET BETTER LIGHT

From KEROSENE (Coal Oil)

Tests by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle Lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Guaranteed. Better light than gas or electric. To introduce the Aladdin we'll send a sample lamp on →

AGENTS WANTED

Experience unnecessary. Every home needs this lamp. One agent sold over 1000 on money back guarantee, not one returned. Another sold \$300 worth in 15 days. Evenings made profitable. Ask for agents prices and trial offer. **MANTLE LAMP COMPANY, 360 Aladdin Building, CHICAGO, ILL.**

10 Days TRIAL
Ask for Particulars



WANTED!

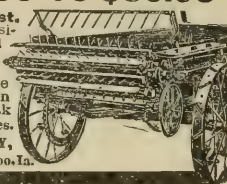
Ten Men or More in every township to write me quick for my special 1913 proposition and price on a GALLOWAY SPREADER. I'll guarantee to

SAVE \$25.00 TO \$50.00

30 to 90 Days Free Test.

No risk. My Spreader positively works better and lasts longer than any other, or no deal, you the sole judge. Write at once for special 1913 proposition and new free book, "A Streak of Gold." Wm. Galloway, Pres.

WM. GALLOWAY COMPANY,
1689CF Galloway Stn. Waterloo, Ia.



THE BEST LIGHT



makes and burns its own gas. Costs 2c. a week to operate. No dirt, grease nor odor. A pure white light, more brilliant than electricity or acetylene. None other so cheap or effective. Agents wanted. Write for catalogue and prices.

THE BEST LIGHT CO.
306 E. 5th Street, Canton, O.



FARM FENCE

41 INCHES HIGH
100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

20 CENTS A ROD

KITSELMAN BROS. Box 21 Muncie, Ind

APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

Dept. 6.



4 BUGGY WHEELS

With Rubber Tires \$18.45. Your Wheels Re-rubbered, \$10.50. I make wheels 3/4 to 4 in. tread. Tops, \$6.50. Shafts, \$2.10. Repair Wheels, \$3.95. Axles \$2.25. Waggon Umbrella free. Buy direct. Ask for Catalog 47.

SPLIT HICKORY WHEEL CO., 547 E. St., Cincinnati, Ohio.

HUMPHREYZE

An egg a day in winter—200 a year—feed cost cut in two—"The Golden Egg" by Humphrey tells it all. A real teacher of poultry keeping, free. A Humphrey Bone Cutter will be sent for free test.

HUMPHREY, Mine St. Factory, Joliet, Ill.

FOR EGGS IN WINTER

TRAPPERS MAGAZINE FREE



The Hunter-Trader-Trapper is the oldest, largest and best magazine of its kind in the world. The Editor wants you to read a copy free—he knows you will like it for he has had about 30 years experience with traps, guns, dogs, furs, etc., so that the magazine is up-to-date, illustrated, 128-200 pages issued monthly about Steel Traps, Deadfalls, Snares, Baits, Scents, Trapping Secrets, Skinning and Stretching Furs, Raw Fur Prices, London Sale Reports, Fur Farming, Ginseng, Coon and Fox Hunts, Big Game Hunting, Training Night Hunting Dogs, etc. The Editor has also written many books on Hunting, Trapping, Fur Farming, Ginseng Growing, Camping, Fishing, etc. To show you what a great magazine it is a 176 page number together with 32 page booklet giving description of books and magazine sent free.

A. R. HARDING, Publisher, Box 319, Columbus, Ohio



Money in This

Print your own cards, circulars, book, newspaper. PRESS, \$5. larger \$18. Rotary \$60. All easy, rules sent. Print for others; big profit. Write factory for press catalog. TYPE, cards, paper, etc.

THE PRESS CO., Meriden, Conn.

Lexington Hotel

500 Rooms European Plan
Michigan Boulevard & 22nd St.
Chicago, Ill.

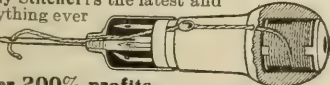


The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.
We have three of the best Cafes in the City, and prices are reasonable.
Write us for booklet or to make reservation.
M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.

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Beekeeping, Vegetable Gardening, Truck, Fruit-growing, Poultry, Flowers, Greenhouse, General Farming, Small-farm Course, Dairying, Soils and Fertilizers, Crops, Stock, Farm Management, Farm Book-keeping, Dry Farming, Course for Teachers of Agriculture, Farm Veterinary, Writing for Farm Papers, Mushroom, Ginseng, etc. Which course interests you?
VALUABLE BOOK ABSOLUTELY FREE, "HOW TO MAKE THE FARM PAY MORE."
Courses for actual and prospective farmers, in country, village, or city, whether you own a farm, garden, city or suburban lot or expect to. A safe way out for city man longing to get back to the farm. More profits for the farmer. Faculty 21 leading experts. Students in every State. Just the opportunity you have been wanting—to learn at home. Free sample lesson on request. (No agents.) Send today for temporary low rate and convincing proof.
American Farmers School, 217 Laird Bldg. Minneapolis, Minn
(Original and largest Correspondence School of Agriculture.)

FOR SEWING LEATHER

The Speedy Stitcher is the latest and best of anything ever offered for \$1.00.

Agents make over 200% profits.
Send at once for catalog and terms.
Automatic Awl Co. 85 Gardner Terrace, Worcester, Mass.

PUBLICATIONS ON BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet, giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 578 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$..... to cover the cost.

1	2	3	4	8	9	10	11	12	15
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Name

Street Address or R. F. D.

Town

G.B.C. 11-1-12 State

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Buckwheat honey in 160-lb. kegs at 8c. f. o. b. here. N. L. STEVENS, Moravia, N. Y.

FOR SALE.—White-clover extracted honey in 60-lb. cans. HENRY HETTEL, Marine, Ill.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

Fancy Michigan extracted honey in quantity and packages to suit.
A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY-PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—Finest quality new clover honey in 60-lb. tin cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

Very fine quality of raspberry-milkweed honey in new 60-lb. cans at 9 cts.
P. W. SOWINSKI Bellaire, Mich.

Bronzed Honey Labels, 250, 50 cts.; 500, 80 cts. 1000, \$1.10, postpaid. Send two-cent stamp for sample. PEARL CARD CO., Clintonville, Conn.

Finest extracted water-white alfalfa honey. Also amber alfalfa and home-grown amber fall.
DADANT & SONS, Hamilton, Ill.

FOR SALE.—Finest extracted white-clover and basswood honey. The kind with a delicious flavor. A trial order will convince you.
D. H. WELCH, Racine, Wis.

FOR SALE.—The finest extracted honey I ever produced—gilt-edged in every respect. Clover with a little basswood flavor. In 60-lb. cans. Sample free.
J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Fine quality clover honey at 9 cts. in 60-lb. cans; also amber fall honey, good flavor and body, at 8 cts. in 60-lb. cans, two cases; sample, 8 cts. EDW. A. REDDOUT, Box 43, Lysander, N.Y.

Comb honey capped white in shallow frames, 12½ cts. per lb., f. o. b. here crated. Extracted amber in 60-lb. cans, \$6.00. Sample, 5 cts.
JOHN W. CASH, Bogart, Ga.

FOR SALE.—Two carloads of choice sage honey by the can or case. Samples of honey and desirable California souvenir free for a stamp.
C. W. DAYTON, Chatsworth, Cal.

Our fall crop of comb honey at \$3 per case of 24 sections, well filled; six cases to carrier; extracted, 8 cts. to 9 cts.; two sixty-pound cans to case. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—White-clover and basswood extracted honey, blended in the extractor; put up in brand-new 60-lb. cans, 2 cans per case, at \$12 per case of 2 cans or more, F. O. B. Flint. Cash with order. This honey is the finest I have ever produced. L. S. GRIGGS, 711 Avon St., Flint, Mich.

RASPBERRY HONEY.—Our crop of raspberry honey this season is very fine—the best in quality I ever saw. It was left on the hives until it was all sealed, and thoroughly ripened by the bees. Thick, rich, and delicious. It is put up in new 60-lb. tin cans. Price \$6.00 per can. Large-sized sample by mail, 10 cts. Said 10 cts. may be deducted from any order sent for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Honey, good extracted. Quote, with sample. J. C. BULL, Hammond, Ind.

WANTED.—Quantity choice extracted honey. Quote lowest price. BULL & CAVANAGH, Hammond, Ind.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Car of light-medium or dark-amber extracted honey in cases of two five-gallon cans. We prefer the light amber to the dark, but can use quite a quantity of either grade provided the flavor is mild. Our trade does not want a pronounced-flavored honey. Submit a two or four ounce sample and quote your best prices delivered to your railroad station.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE

FOR SALE.—Or exchange for extracted honey, good second-hand hives and supplies.
N. F. GUTE, Owosso, Mich.

A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight.
G. F. STANTON, Buckingham, Fla.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.
C. H. W. WEBER & Co., Cincinnati, O.

For sale or exchange for income-bearing property, our entire business, 1500 colonies of bees and fixtures. Reason for selling, poor health.
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Re-cleaned ready for drilling. Write for prices.
L. H. RANDALL, Medina, O.

WANTS AND EXCHANGES

WANTED.—Danz. bodies with or without frames, bottoms, and tops. DR. SHORTLIDGE, Lima, Pa.

WANTED.—To sell or exchange for honey, 19 vials of GLEANINGS, clean.
L. A. DOSCH, Miamisburg, O.

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.
ERNEST W. FOX, El Paso, Texas.

WANTED.—Apiarist or helper who is willing to invest \$250 in an apiary. We allow you wages and percentage of crop, as manager. Particulars on request.
APIARIST, Sawtelle, Cal.

WANTED.—To rent an apiary of from 200 to 300 colonies for the season of 1913. For further particulars address
VERN O. DERBY, Box 16, Wileyville, W. Va.

WANTED.—A partner, experienced beekeeper, qualified to rear queens, to help raise queens in California and produce honey in Nevada. \$4000 required.
C. I. GRAHAM, Reno, Nev...

WANTED.—To know if there is any beekeeper in Cuba who can furnish me with an ounce of aguiñaldo seed; will pay \$2.50 in advance for it to the first party replying to this advt.

W. J. YOUNG, Arcibco, P. R.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—200 colonies in eight-frame hives.
Run for comb honey. Good location.
A. W. MCBRIDE, Las Cruces, N. Mex.

FOR SALE.—50 colonies healthy good Italians to
common blacks; every thing in connection with
them.
M. E. BABB, Williamstown, Mo.

FOR SALE.—Three-banded Italian queens bred for
honey, gentleness, and prolificness. One, \$1.00; 6
for \$5.00.
WM. S. BARNETT, Barnett's, Va.

FOR SALE.—25 colonies of bees, a quantity of
hives, comb-supers, and other supplies. If you
want to save money, write.
LEON C. WHEELER, Barryton, Mich.

FOR SALE.—250 colonies bees; 5 acres land;
small house, right in town; school, church, and
railroad depot, all in 1000 feet of house, \$1800
cash.
C. A. BUTTS, Normanna, Texas.

Colonies of Italian bees in L. hives, 10-fr., built
on full brood-frames, wired, body and shallow super,
redwood, dovetailed, three coats white, sheeted lids;
each neat, modern, and full of stores—any time.
JOS. WALDRATH, Antioch, Cal.

Golden Italian queens that produce golden bees,
the brightest kind. Gentle, and as good honey-gath-
erers as can be found. Each, \$1.00; six, \$5.00;
tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—Moore's strain and golden Italian
queens, untested, \$1.00; six, \$5.00; twelve, \$9.00;
Carniolan, Banat, and Caucasian queens, select,
\$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind,
\$1.50; six, \$8.00. Choice breeders, \$3.00. Circular
free.
W. H. RAILS, Orange, Cal.

HELP WANTED

WANTED.—Experienced man to pack bees for
winter.
F. B. CAVANAGH, Hebron, Ind.

To employ an expert apiarist for 1913—only
those with good references need apply.
L. B. CAPPS, Woodland, Yolo Co., Cal.

WANTED.—Honey salesmen. Our men average
\$40 per month, board and expenses. This is your
opportunity to join us and do as well.
BULL & CAVANAGH, Hammond, Ind.

REAL ESTATE

FOR SALE.—Apiary, farm, good horse, mule, 2
milk cows, and start of hogs; 60 acres of land, 30
cleared; medium building and all farm tools; one
mile from town. WM. WHEELER, Watertown, Fla.

WANTED.—To buy an apiary or line of apiaries
in a southern climate, in or out of the United States,
where the work begins in November and ends in
March. I want to spend a few years in a warmer
winter climate, coming back here in the summer.
Address, giving particulars,

THOS. J. STANLEY, Manzanola, Otero Co., Colo.

My beautiful "Home of the Honeybees" is one
6-room house, other out-buildings, 3 1/5 acres land,
300 colonies healthy Italian bees in eight-frame
hives, 500 full-depth supers of extracting combs
wired, built on full sheets foundation, 100 comb-honey
supers, 1 eight-frame extractor, 1 gas-engine, 1
H. P. Fine alfalfa and sweet-clover location; 1 mile
out of Roswell. Just as well located as can be.
Abundance of shade and water. All must sell to-
gether. \$5000. W. H. CRAWFORD, Roswell, N. Mex.

INDIAN RUNNER DUCKS

Runners, hundreds, light fawns, also dark pen-
ciled, white eggers; \$1.00 and up.
R. O. DICKSON, Box 28, La Harpe, Ill.

Fawn and White Indian Runner duck eggs, \$1.00
per 11; \$7.00 per 100. Day-old ducklings, 25 cts.
each. Mailing list free.

KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS. American Standard
light fawn and white. I have a fine lot of one-year-
old breeders for sale at a real bargain price. I can
start you, and start you with the best. Write me.
C. O. YOST, Rt. 4, Box D, Winchester, Ind.

PIGEONS

FOR SALE.—Eight pair of extra good homing
pigeons.
LEWIS FRANCISCO, Mosinee, Wis.

PIGEONS! PIGEONS! Thousands, all breeds; many
satisfied customers everywhere; start with our
money-making pigeons. Large free illustrated mat-
ter.
PROV. SQUAB CO., Providence, R. I.

MISCELLANEOUS

White and brown ferrets. Stamp for description
and prices. JEWELL'S FERRET KENNELS, Spencer, O.

MICROSCOPE.—Six powers, from 45 to 200 di-
ameters. Shows well the difference in size and form
of blood corpuscles of man, chicken, and frog. Been
used, but good as new. Send for interesting and
instructive circular. J. F. PHIN, Paterson, N. J.

Get your winter supply of apples direct from
western New York, noted for producing apples of
fine quality. Hand-picked Spies or Baldwins. No.
1, \$3.25 per bbl.; No. 2, \$2.25. Will exchange for
a limited quantity of honey.
ELMER GRESSMAN, Hamburg, N. Y.

WANTED.—Copies of GLEANINGS in good con-
dition, for Jan. 1, 1912, and for Feb. 15, 1912.
Subscribers having perfect copies of either of these
dates will please notify us by post card, if they
wish to exchange either number for a two months'
credit on time of subscription.

THE A. I. ROOT COMPANY, Medina, Ohio.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June
1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912;
beautiful, hustling, gentle workers. Send for price
list to
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved, red-clover Italians, bred for
business; June 1 to Nov. 15, untested queens, 75
cts.; select, \$1.00; tested, \$1.25 each. Safe arrival
and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei,
colonies, and bees by the pound, ready in May.
Our stock is Northern-bred, and hardy; five yards
wintered on summer stands in 1908 and 1909 with-
out a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Honey reports continued from page 2.

CHICAGO.—Sales of honey during the month of October have been above the average, both in comb and extracted. The market is well supplied, but not overstocked for this season of the year (the major part of the comb being sold during October and November). Prices on No. 1 to fancy comb honey range from 17 to 18; off grades from 1 to 3 cts. per lb. less; amber grades, 12 to 15; white extracted, 8 to 10; amber, 7 to 8. Beeswax brings 30 to 32.

Chicago, Oct. 18.

R. A. BURNETT & CO.

CINCINNATI.—The demand for both extracted and comb honey is good. We are selling strictly fancy and number one comb honey at \$3.75 to \$3.85 a case. Lower grades are not wanted at any price. White-clover extracted honey we are selling at 8½ to 10, and amber honey at 6½ to 8½, according to the quantity and quality purchased. The above are selling prices. We are paying 28 cts. cash or 30 in trade for choice bright yellow beeswax delivered here. We render beeswax from old comb and cappings. Write us.

Cincinnati, Oct. 24. THE FRED W. MUTH CO.

NEW YORK.—We have a fairly good demand for white comb honey, at prices ruling about the same—that is, fancy white, 15, with some exceptionally fine lots which will bring 16; No. 1 white, 14; No. 2 white and light amber, around 13; mixed and buckwheat at from 10 to 12, according to quality. Buckwheat honey seems to be rather scarce. The crop evidently did not turn out as large as expected. Extracted is in fair demand for all grades, white clover selling at 8½ to 9; light amber at 8, and amber at from 7 to 7½. West Indian is arriving quite freely, and sells at from 75 to 85 cts. per gallon, according to quality. Beeswax is quiet at 30.

New York, Oct. 17. HILDRETH & SEGELKEN.

LIVERPOOL.—Since our last report there has been very little trade doing, but the honey market is steady. Some 52 barrels of Peruvian (for manufacturing purposes) have been sold at \$5.88, and 50 to 60 cases of Californian at \$10.20 to \$11.40—a slight improvement. Jamaican, good quality, is selling in retail at \$7.44 to \$8.16, and there is a fair stock to be disposed of. Quotations are as follows: Haitien, \$6.24 to \$7.52 per cwt.; Peruvian, \$5.76 per cwt.; Chilian, \$5.76 to \$8.16 per cwt.; Jamaican, \$6.00 to \$8.40 per cwt.; Californian, \$9.60 to \$11.04 per cwt. Chilian beeswax offers at \$37.48 to \$41.12, but trade is slow. Sierra Leone is steady at \$33.54 and Gambia at \$34.48. Quotations are as follows: Chilian, \$33.88 to \$39.92; African, \$32.64 to \$34.00; West Indies, \$31.44 to \$36.28.

Liverpool, Oct. 15.

TAYLOR & CO.

ST. LOUIS.—The demand for choice comb honey keeps up very well, and the supply is small, especially of the better grades. There is considerable dark comb honey from the southern States on the market, which sells slowly and at low figures. We quote fancy white at 16 to 17; No. 2 white at 15; amber, 13 to 15; dark, 9 to 11. Broken and inferior quality is not wanted, and sells very low. The demand for extracted honey is good, and quotable as follows: Light-amber southern in barrels and half-barrels at 7; dark, 6 to 6½; choice light amber in five-gallon cans at 7½. There is very little white-clover honey on the market, which would sell at 9 to 9½; California white at 9; light amber, 8½; amber, 8 in five-gallon cans. Beeswax is in good demand at 29½ for prime. Inferior and impure sells for less.

St. Louis, Oct. 17. R. HARTMANN PRODUCE CO.

STRAW BEEHIVES.

We have frequently had calls for old-fashioned straw hives which we have not always been able to supply. We have imported from England a few which we can offer at \$1.50 each, shipped from New York or from here. Shipment has arrived in New York, but the part to come here has not come in as we go to press, but should arrive soon. These hives are cone-shaped, about 16 inches high and the same diameter.

THE A. I. ROOT CO., Medina, Ohio.

THE YOUTH'S COMPANION FOR 1913.

The Youth's Companion appeals to every interest of family life, from housekeeping to athletics. It begins with stories of youthful vim and vigor, with articles which disclose the secrets of successful play in the great games, with charming tales of life at the girls' colleges. But the Companion does not surrender these readers when they have entered the more serious paths of life. Mothers will welcome the page for little children and the weekly doctor's article. Fathers will find the important news of the day as it is, and not as it is rumored to be. The entire household will appreciate the sketches which touch gently on common foibles or caricature eccentricity. In short, for less than four cents a week The Companion brings into the home clean entertainment, pure inspiration, fine ideals, increase of knowledge.

Names rarely seen in tables of contents will be found in The Companion's Announcement for 1913, which will be sent upon request—with samples of the paper, to those not familiar with it.

Every new subscriber for 1913 will receive free all the issues for the remaining weeks of 1912; also, free, The Companion Window Transparency and Calendar for 1913, in rich, translucent colors—the most beautiful of all Companion souvenirs.

THE YOUTH'S COMPANION,

144 Berkeley St., Boston, Mass.

Adv't.

New Subscriptions Received at this Office.

SPECIAL NOTICES

A. I. ROOT

THE CHARITY THAT "SUFFERETH LONG AND IS KIND."

Just as we go to press, Oct. 26.—In Our Homes for this issue, page 708, you may notice that I have been pleading for a more Christianlike spirit, even in politics. Well, after that was in print, and after the splendid address, "One Standard of Morals," was also in print, a friend sent me a clipping from the Baltimore *Sun* of Oct. 21. The address, we are told, was in a well-attended meeting in Lehmann's Hall. In this address it seems he (Chafin) was particularly bitter toward the Maryland Superintendent of the Anti-saloon League. He says:

"I will give \$1000 to that bluffer, William H. Anderson, or any other man he may name, who will answer my printed lecture, 'One Standard of Morals.' The entire Anti-saloon League from top to bottom is a humbug. Anderson is no better than the league, and that is a fake."

And further on, after the meeting was over, he is reported as having spoken as follows:

"There are only four or five States in this country that still cling to the delusion that the Anti-saloon League will do away with the liquor traffic, and I am sorry to say that Maryland is one of them. But if 'Dry Bill' will accept my challenge, it will not be long before I nail his hide to the fence as I did with the Anti-saloon League superintendents in Wisconsin and California."

The *Sun* gives the above in quotation marks, indicating that it was taken down by a stenographer. I also have another clipping from the *Sun* the day after, giving Anderson's reply. It is courteous and gentlemanly, and given in as much of a

(Christian spirit as could be expected from one under such a provocation. I am well aware that the enemies of temperance, and of the Prohibition party especially, will not hesitate to exaggerate; but I think there is scarcely a doubt that Mr. Chafin, great man that he is, was led into doing great damage, perhaps unconsciously, to the very cause he has most at heart.

By the way, what have we a right to expect of the President or an ex-president, or of one who aspires to the great office of presidency of the United States? How would this do? Such a man should be one who "suffereth long, and is kind;" "doth not behave himself unseemly; seeketh not his own; is not easily provoked; thinketh no evil;" he "rejoiceth not in iniquity, but rejoiceth in the truth; beareth all things, hopeth all things, endureth all things."

UNITED WE STAND, DIVIDED WE FALL.

A good brother just now writes that he is pleased with the Prohibition platform, and would vote the Prohibition ticket were it not for the fact that the Prohibitionists do not insist on observing Sunday on Saturday. If this thing goes on, how shall we ever be able to put up a united front against the enemy?

Convention Notices

Notice is hereby given that the delegate meeting of the National Beekeepers' Association will be held in Cincinnati, February 12, 13, 1913. While all sessions will be open to the members and visitors, some sessions will be devoted wholly to business through the delegates. At least one session each day will be set aside for the members to discuss such subjects as may be decided upon later, notice of which will be given out by the secretary. The subjects that will likely be selected for discussion will be of national character rather than pertaining to the production of bees and honey. Remus, Mich., Oct. 1. E. D. TOWNSEND.

PROGRAM OF ONTARIO BEEKEEPERS' CONVENTION TO BE HELD IN TORONTO ON NOV. 13, 14, 15.

WEDNESDAY AFTERNOON.

Minutes, P. W. Hodgetts, Secretary, President's address, Dennis Nolan. Reply by Vice-president. Discussion opened by Mss E. Robson.

Improved methods of selling honey, E. E. Tyrell, Detroit, Mich.

Question-drawer, F. W. Krouse.

WEDNESDAY EVENING.

Open meeting.

THURSDAY MORNING.

The foul-brood situation in Ontario. Management of out-apiaries; 1. With complete outfit at each yard, using auto or horse for transportation, H. G. Sibbald.

2. Management at long range, J. L. Byer.

3. Moving outfit on motor truck, Enos Farr.

4. From one center, with stationary machinery and motor truck to haul supers home, F. J. Miller.

THURSDAY AFTERNOON.

Preparing bees for winter, J. F. Dunn.

Question-drawer, J. Newton.

Address by Hon. J. S. Duff, Minister of Agriculture.

Election of officers, etc.

THURSDAY EVENING.

Bees, poultry, and fruit, J. W. Clark. Discussion opened by R. G. Houghton.

The district representative, and how he can help the beekeeper, A. D. McIntosh, B.S.A.

FRIDAY MORNING.

Experiences of the season, Miss Margaret Scott. Bee-breeding, F. W. L. Sladen, Assistant in Apiculture, Ottawa, Ont.

Unfinished business.

The following is the program of first annual convention of Iowa State Beekeepers' Association, to be held in the club room of the Savery Hotel, Des Moines, Dec. 12, 13, 1912:

THURSDAY, 10 A. M.

Address of the President, W. P. Southworth, Sioux City.

Report of Secretary-Treasurer, C. L. Pinney, LeMars. Greeting from Illinois, C. P. Dadant, Hamilton, Ill. Committee appointments.

THURSDAY 2 P. M.

Production of comb honey, F. W. Hall, Colo. Production of extracted honey, D. E. Lhommedieu, Colo. Wintering problems, C. H. True, Edgewood.

FRIDAY, 10 A. M.

Fuss and fun of beekeeping, Eugene Secor, Forest City. The foul-brood situation, Frank C. Pellett, State Inspector, Atlantic. State aid for the industry, E. E. Townsend, Ft. Dodge.

FRIDAY, 2 P. M.

Question-box.

Open discussion led by prominent beekeepers.

Making the most of the home market. Co-operation in marketing. Increasing the forage and bettering the locality. Exhibits at fairs as a means of advertising. Election of officers.

Let every beekeeper bring samples of his best product to put on display, and come prepared to demonstrate any new kind or short cut that is likely to prove of value to the fraternity.

Headquarters will be at the Savery Hotel.

FIVE PER CENT DISCOUNT FOR NOVEMBER CASH ORDERS

To those who buy now for next season, sending remittance with the order during the month of November subject to the conditions named below, we allow 5 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order, the discount may be deducted from the whole order, including these items which are otherwise excepted.

THE A. I. ROOT CO., MEDINA, O.

After 60,000 Cars

By R. E. Olds, Designer

I have built to date over 60,000 cars.

For 25 years I have watched their performance. I have found out and corrected a myriad shortcomings. I've acquired a world of caution

Some say I'm "old-maidish"—too careful, too slow. But I call these things standards. I've made them my code.

My Latest Extreme--Big Tires

The new Reo the Fifth—out Oct. 1—is equipped with 34x4-inch tires.

That is 22 per cent greater tire capacity than I ever have used on a car of this size. Yet this car was always much over-tired, compared with usual standards.

These oversize tires add 30 per cent to my tire cost. But they add 65 per cent to the average tire mileage. They should save you in tire waste some hundreds of dollars during the life of the car.

Remember this fact when you come to compare cars. The tires on Reo the Fifth are now 34x4.

Make Some Other Comparisons

In judging cars, in these days of close prices, it is very important to make other comparisons.

There are dollars saved sometimes which cost buyers ten dollars. What you want is final economy.

Watch points like these:

Reo the Fifth has 190 *drop forgings*. All makers use some of them to get lightness and strength. But Reo the Fifth has 190. And its racy lines, its lightness and strength are due largely to those costly forgings.

My springs are *two inches wide*. Each spring has *seven leaves*. The front springs are 38 inches long—the rear are 46.

I use *fifteen roller bearings*—11 of the Timken, 4 of the Hyatt High Duty.

Every important bearing has *bronze bushings*—even the smallest of them.

For safety's sake I use *14-inch brake*

drums. I use a centrifugal pump. I use a \$75 magneto, to insure a hot spark when the car runs slowly. You can start on this magneto.

My carburetor is *double heated*—with hot air and hot water. So poor gasoline can't give trouble.

For big margin of safety, every driving part in this car is built for *45-horsepower requirements*.

No Chances

I take no chances on any part of this car, for chances sometimes cost money.

Each lot of steel is *analyzed twice*. Gears are tested in a crushing machine, to stand 75,000 pounds.

Each engine gets *five tests*—about ten hours each. It is run for 28 hours in the chassis.

I limit my output to an easy capacity of 50 cars a day. So the cars are built slowly and carefully—no man is ever rushed.

Parts are ground over and over. Our factory system insures a thousand inspections.

Petty Savings

I abhor petty savings. I could save, perhaps, \$50 to \$75 per car in the finish and upholstering if I cared to skimp.

But I put on this car a special body which costs more than wood or metal. I save by this 50 pounds in weight, and the body takes a wondrous finish.

I give 17 coats to each body. The fenders, radiator, hood, etc., have two coats of rubber enamel baked on.

The upholstering is deep, and of genuine leather. It is filled with the best curled hair. The backs as well as the seats are filled with springs, to give you the utmost comfort.

Every part shows the final touch. Even the engine is nickel-trimmed. I believe that folks like these perfections.

Center Control

Reo the Fifth has my center control—a single light handle, out of the way, which

does all the gear shifting by moving *three inches* in each of four directions.

Both brakes are operated by foot pedals. So there are no levers to clog the front doors.

The driver sits on the left side, as in electrics, close to the cars he passes. Yet the gear-shifting lever is at his right hand. Note how many great cars are following me in this. The old way of driving will be soon out of date.

Do These Precautions Pay?

The result of all this is that Reo the Fifth sells on a mighty small margin. I am keeping the price under \$1100, with all the new features, including these big tires.

Our profit per car is now a very small item, despite the fact that we make every part ourselves.

Yet there are cars which, at passing glance, seem to undersell this car.

I have told you the facts, so you may judge for yourself if these are things which you care to go without. Would you wish me to save you a little on price by trebling your cost of upkeep?

I am sure you'll say no. I am also sure that the time is coming when most cars

must be built like this. Men won't have them otherwise.

Here's the greatest value any man can give you in a car. If you want such value I want your trade. And you'll be very glad, in years to come, that you picked a car like this.

In 1,000 Towns

A thousand dealers in a thousand towns now offer this new type of Reo the Fifth.

Our 1913 catalog pictures all the details, and shows styles of bodies. Write us for it now.

R. M. Owen & Co.

General Sales Agents for

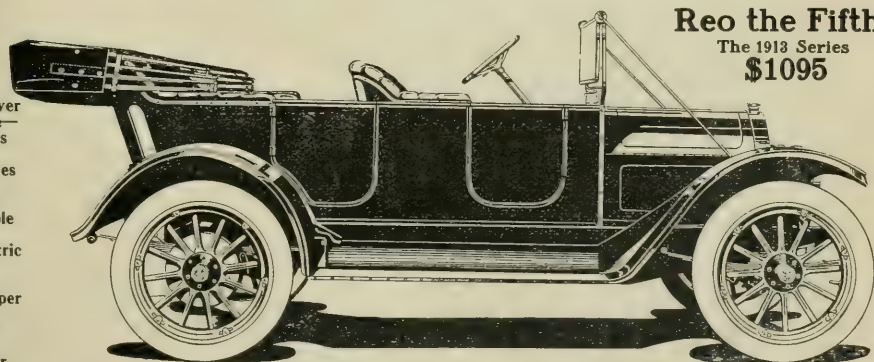
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The 1913 Series

\$1095



Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank for headlights, speedometer and self-starter—all for \$100 extra.

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Demountable
Rims
Three Electric
Lights
Speed—
45 Miles per
Hour
Made with
2 and 5
Passenger
Bodies



Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justify entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on Mr. HUTCHINSON's life by Prof. A. J. Cook, in GLEANINGS:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our bee-keeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work, to which he was so entirely devoted. His quick apprehension and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Most fortunate for all bee-keepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of ADVANCED BEE CULTURE. Only a few short days after an editorial by Mr. E. R. Root, editor of GLEANINGS IN BEE CULTURE, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly)—known and read by bee-keepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and GLEANINGS one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

Gleanings in Bee Culture



VOL. XL. NOV. 15, 1912, NO. 22.

Gleanings in Bee Culture

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These features, together with a Special Magazine Department
Make up the Leading Farm, Home, and News Paper of the West

OUR OFFER	{	The Price of the Weekly Inter Ocean and Farmer remains \$1.00 a Yr.
		The Price of Gleanings in Bee Culture is 1.00 a Yr.
		The Two Papers each one year will cost only 1.25

N. B.—This special arrangement with The Weekly Inter Ocean and Farmer is for a limited time only. Subscribers to the Weekly Inter Ocean and Farmer are assured that no papers will be sent after their subscriptions expire unless their subscriptions are renewed by cash payments.

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"The Finest Made" at 5 Per Cent Discount in November

Mr. Beekeeper, now is the time to take advantage and purchase your requirements for the coming season, and save 5 per cent discount. We are especially equipped to fill all **LARGE EARLY ORDERS**, and can give all orders, either **LARGE** or **SMALL**, prompt attention.

Hives and supplies purchased now can be gotten ready during the rainy days and idle time, thus costing less to put together in addition to making big interest on the money invested for only a few months; and don't forget that you are buying at this discount those "standard of perfection" goods. **"FALCON"** goods.

Have you descriptive circular of our air-spaced hives? They stood the test of the winter of 1911, and that's saying a lot. Better try five.

Dealers Everywhere.

Red Catalog Postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

Where the good bee-hives come from

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**Save 5 per cent
in November**

For November only, we will offer you the liberal discount of five per cent on any bee supplies ordered from us. Now is the time to stock up for the coming season. Have you got those honey cans or jars yet? Don't wait too long. Ask for

BLANKE'S BEE BOOK

It describes our complete line of bee supplies, and contains much interesting and useful information on the care and management of bees. It is **FREE**.

BLANKE MFG. & SUPPLY CO.

Blanke Bldg., St. Louis, Mo.

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THE GUIDE TO NATURE (monthly, illustrated) - - - Per year, 1.00
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BOTH, ONE YEAR, \$3.00; sample of either, 10c.

For Teachers:

"How Nature Study Should be Taught," (208 pgs.) - Postpaid, \$1.00

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"The Spirit of Nature Study," (322 pgs., illustrated) - Postpaid, \$1.00
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"Three Kingdoms," the handbook of the AA - - - Postpaid, .75

For Plants:

Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):

The Agassiz Association (Popular Nature Society).

For Correspondents:

(To write for further information.)

Edward F. Bigelow

Arcadia, Sound Beach, Connecticut

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . Tells a beginner's experiences in a way to help other beginners.

PRICE \$1.10 POSTPAID.

The A. I. Root Co., Medina, Ohio

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

COLUMBUS.—Receipts slightly heavier. Fancy white comb brings 18; No. 1 ditto, 17; No. 2, 14; Colorado extracted-section cases, \$3.60.

Columbus, Nov. 2. **THE EVANS & TURNER CO.**

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Nov. 4. **BLAKE-LEE CO.**

BUFFALO.—Receipts of honey are light, and prices firm; demand is a little slow. Fancy white-clover comb brings 16; No. 1 to choice, 15 to 16; No. 2, 1 to 14; dark comb, 13 to 14; white extracted, 8 to 9; dark, 7 to 7½. Beeswax, 28 to 30.

Buffalo, Oct. 29. **W. C. TOWNSEND.**

ALBANY.—The demand for honey is good now, with a short crop of buckwheat comb and extracted. We quote white comb, fancy, 16 to 17; A No. 1, 15; mixed, 14 to 15; buckwheat mixed, 13 to 13½. We advise letting honey come along before cold weather.

Albany, Nov. 5. **H. R. WRIGHT.**

CHICAGO.—Honey sold well during the latter part of October. Prices ranged on No. 1 to fancy comb from 16 to 18; the amber grades, from 13 to 15. Comb with many unfilled cells is unsalable. White extracted continues to sell chiefly at from 8 to 9; amber grades at 7 to 8. Beeswax brings from 30 to 32, according to color and cleanliness.

Chicago, Nov. 4. **R. A. BURNETT & Co.**

LOS ANGELES.—There is only a small quantity of honey on the Coast unsold, but it should move out rapidly, as it can be bought at very reasonable prices, considering that the market is bare of white and water-white sage honey. We quote light amber sage, about 6¼; light-amber alfalfa, 6; white to water-white alfalfa, 7 to 7¼; all f. o. b. Coast, dollar freight rate by rail. Light-amber sage brings 6½ to 6¾; f. o. b. steamer San Diego, with 60 cents freight rate to New York. Honey has been moving forward steadily, and the indications are that stocks will be practically exhausted long before any new-crop honey is available. At the above prices we would endeavor to execute orders promptly on receipt of same.

Los Angeles, Nov. 2. **HAMILTON & MENDERSON.**

SURE, OLD COMBS ARE VALUABLE

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Cincinnati, Ohio

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We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—5 per cent for cash orders sent in November, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

H. H. ROOT

J. T. CALVERT

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Editor Home Dep't.

Ass't Editor.

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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ZANESVILLE.—Honey is in very fair demand at the present time, with very little being offered by producers. For best grades of white comb, 18 to 19 is being received, with some concessions on quantity orders. White extracted in 60-lb. cans is quoted at 9 to 10. Producers are receiving for beeswax 28 cts. cash, 30 in exchange for supplies.

Zanesville, Nov. 8.

E. W. PEIRCE.

SCHENECTADY.—Both comb and extracted are good demand, and no accumulation of stock, which is rather unusual for November. In fact, buckwheat, both comb and extracted, is scarce, and we are unable to fill large orders. We quote fancy white, 16 to 17; No. 1, 14 to 15; other grades, 12 to 13; buckwheat, 12 to 14, according to quality; extracted, light, 8; dark, 8 to 9.

Schenectady, Nov. 1. CHARLES MACCULLOCH.

INDIANAPOLIS.—White comb sells at 18 cts. in ten-case lots; No. 1 white, one cent less. Amber comb in slow demand, and at lower figures. Best extracted sells at 11 to 12 cents in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers; and it is surmised that some are holding for higher prices; but at higher prices the demand would cease. Beeswax is in good demand, and producers are being paid 30 cents per pound.

Indianapolis, Nov. 2. WALTER S. POWDER.

ST. LOUIS.—The demand for choice new comb honey in this market is very good, with a supply equal to the demand. Southern comb honey of inferior quality is still moving very slowly. We quote fancy white comb honey at 16 to 17; No. 2 white at 15; amber, 13 to 15; dark, 9 to 11. The demand for extracted honey is also good. We quote light amber Southern, in barrels and half barrels, at 7; in five-gallon cans, 7½. Some white-clover California honey has come to this market recently, and is quotable nominally at 9 to 9½. Beeswax is in good demand at 30 cents. Inferior and impure sells for less.

St. Louis, Nov. 5. R. HARTMANN PRODUCE CO.

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To those who buy now for next season, sending remittance with the order during the month of November subject to the conditions named below, we allow 5 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

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You may discontinue GLEANINGS when my subscription expires. What I desire is a journal devoted to bees, and not one man's ideas on how the world should be run.

North Adams, Mass., Oct. 15. C. P. KIMBALL.

My good friend, while I thank you for your frank and outspoken words, I regret that I have given the impression to even one person that the world should be run entirely according to my ideas. I have certainly been unfortunate if I have failed to teach, not my ideas or opinions, but the teachings of Him who left his home in heaven to bring about "peace on earth and good will to men."

But after all, friend K., in writing editorials for your own paper have you not to a certain extent desired to let the world know "how the world should be run" from your standpoint? and is it not the duty and privilege of all to have some opinion as to how things should be managed?

A. I. R.

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5 | A B C of Strawberry Culture,** by T. B. Terry..
New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.

After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6	Asparagus Culture.....	40
6	Alfalfa Culture.....	40
8	Barn Plans and Out-buildings*.....	90
2	Celery for Profit, by T. Greiner**.....	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 | Fruit Harvesting, Storing, Marketing, etc..... 75
It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

| Farming with Green Manures, postpaid**..... 90
This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7	Farm, Gardening, and Seed-growing**.....	90
10	Fuller's Grape Culturist**.....	1 15
5	Garden and Farm Topics, Henderson**.....	60
12	Gardening for Pleasure, Henderson**.....	1 10

While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 | Gardening for Profit**..... 10
This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 | Gardening for Young and Old, Harris**..... 90
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter

Postage.] [Price without postage
Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage
Plants..... 20
This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft** . . 1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**..... 1 15
This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20
5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05

5 | Home Pork-making; 125 pages, illustrated..... 40
I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**..... 1 35
By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price \$2.00.

10 | How to Keep Well and Live Long..... 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

3 | Maple Sugar and the Sugar-bush**..... 25

8 | Manures; How to Make and How to Use
Them; in paper covers..... 30

6 | The same in cloth covers..... 65

5 | Nut Cultivist, postpaid..... 1 25

3 | Onions for Profit**..... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and Even if one is not particularly interested in the busi-

Postage.] [Price without postage
ness, almost any person who picks up Greiner's books will like to read them through.

8 | Practical Floriculture, Henderson*..... 1 10

10 | Small-Fruit Culturist, Fuller 75

2 | Experiments in Farming. By Waldo F. Brown. 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or anything else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

10 | Our Farming, by T. B. Terry**..... 75

Same, paper cover, postpaid..... 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

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10 | Talks on Manures* 1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

10 | The Dollar Hen..... 90

The above book will be clubbed with GLEANINGS for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cents.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all through our poultry books and journals.

5 | The New Rhubarb Culture**..... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Do-
ing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers..... 40

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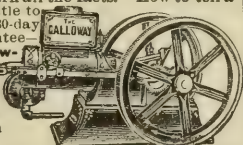
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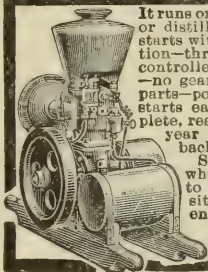
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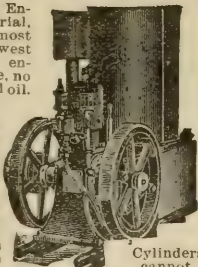
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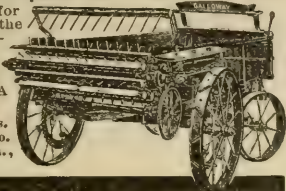
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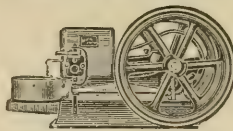
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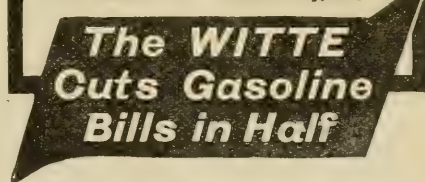
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SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Recleaned ready for drilling. Write for prices.
L. H. RANDALL, Medina, O.

FOR SALE.—50 shallow extracting supers with frames, 25 covers, 25 bottom-boards, all painted and unused; 10 4 x 5 section supers complete; 20 regular hive-bodies, both slightly used; everything 10-fr. size; will ship in lots to suit from Riverton, N. J.
RICHARD D. BARCLAY,
424 So. 40th St., Philadelphia, Pa.

WANTS AND EXCHANGES

WANTED.—To exchange 190 acres and 30-room hotel for bees and supplies of honey.

ERNEST W. FOX, El Paso, Texas.

WANTED.—To buy an interest in an apiary or line of apiaries producing extracted honey. If a partner is wanted, respond.
O. R. CARR, Avon, Ill.

WANTED.—Apiarist or helper who is willing to invest \$250 in an apiary. We allow you wages and percentage of crop, as manager. Particulars on request.
APIARIST, Sawtelle, Cal.

WANTED.—Man to run 140 colonies for comb honey for season 1913. State salary wanted, and experience. Everything new. Care C. B. & Q. Ry.
B. F. SMITH, JR., Cowley, Wyo.

WANTED.—A partner, experienced beekeeper, qualified to rear queens, to help raise queens in California and produce honey in Nevada. \$4000 required.
C. I. GRAHAM, Reno, Nev.

WANTED.—To exchange 68 acres of good Mississippi cotton land for apiary with small farm; want it for a home.
O. HOLDREN,
Irving, Montgomery Co., Ill.

WANTED.—To buy an apiary or line of apiaries in a southern clime, in or out of the United States, where the work begins in November and ends in March. I want to spend a few years in a warmer winter climate, coming back here in the summer. Address, giving particulars,

THOS. J. STANLEY, Manzanola, Otero Co., Colo.

HELP WANTED

WANTED.—Experienced man to pack bees for winter.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—Experienced beemen for season of 1913; give age and experience in first letter. Men under 21 or over 45 need not apply.

J. W. GEORGE BEE Co., Imperial, Cal.

BEES AND QUEENS

FOR SALE.—100 colonies bees, good condition.
W. F. STUART, Garden City, Kans.

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's Va.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind. Gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00; Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free.
W. H. RAILS, Orange, Cal.

REAL ESTATE

FOR SALE.—65 odd acres, 51 fruit trees, strawberries, grapevines, 5-room house, cement foundation, double-wall cement cellar, ½ mile from station. Ideal for poultry and bees; good bee pasture.
F. G. PENNELL, Ossineke, Mich.

Keep bees, cows, pigs, and chickens! Buy 40 acres of good unimproved land in Adams Co., Wis., cheap. Clovers never winter-kill. Basswood and buckwheat plentiful. Heart of potato country. Soil sandy clay and loam.
T. B. SUTHERLAND,
1247 N. 25th St., Lincoln, Neb.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.
F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N.&W. Bldg., Room 73, Roanoke, Va.

FOR SALE.—160 acres choice Morgan Co., Colo., land, 12 miles from Ft. Morgan; land all level, every foot plowable, all fenced and cross-fenced; 43 acres under cultivation; rest in native grass and wild hay; house 22 x 16, 2 rooms; barn, 4 horses, good deep well; could irrigate with the same; 2 good stacks of hay; 15 tons cash fodder; some corn in the same locality made 30 bushels; mail route passes the place; \$15 per acre for cash, live stock, or eastern property. Altitude is too high for the owner.
W. O. SALOGA, Ft. Morgan, Colo.

INDIAN RUNNER DUCKS

Runners, hundreds, light fawns, also dark penciled, white eggsters; \$1.00 and up.
R. O. DICKSON, Box 28, La Harpe, Ill.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS.—American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.
C. O. YOST, Rt. 4, Box D, Winchester, Ind.

POULTRY

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

PIGEONS

FOR SALE.—Eight pair of extra good homing pigeons.
LEWIS FRANCISCO, Mosinee, Wis.

PIGEONS! PIGEONS! Thousands, all breeds; many satisfied customers everywhere; start with our money-making pigeons. Large free illustrated matter.
PROVIDENCE SQUAB CO., Providence, R. I.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

MICROSCOPE.—Six powers, from 45 to 200 diameters. Shows well the difference in size and form of blood corpuscles of man, chicken, and frog. Been used, but good as new. Send for interesting and instructive circular.
J. F. PHIN, Paterson, N. J.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred, and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

WEARING THE "BRAND."

I want to thank you for what I have gathered from your contributions from time to time that has encouraged me in the way of the higher Christian citizenship. My father and grandfathers on both sides were local preachers in the Methodist church, and that mantle has descended on me. It is a grand thing just to wear the *brand*, outside of what one may accomplish in his activities for God.
Muncie, Ind., Sept. 18. W. W. TUTTLE.

"THE BEST 80 ACRES IN INDIANA," ETC.

I am a poor man whom the storms of life have hit very hard. I read all of GLEANINGS, sometimes over and over; but the best of all is Our Homes. I have read borrowed numbers for years back, and have obtained an abundance of good from them; but the grandest of all is in the Home talks of August 15. As I finished your wonderful thought structure on the three texts I said to myself, "I am a poor man; but I would not part with this for the best 80 acres in Indiana." God bless you, and make you even more useful.
Westfield, Ind., Aug. 21. A. L. BEALS.

SPECIAL NOTICES

A. I. ROOT

ADVERTISING TOBACCO CULTURE FOR THE STATE OF FLORIDA, ETC.

Dear Bro. Root:—Look out! look out! I'm after you again with a sharp stick. You don't know how pleased I was to see your roast of the cigarette business as well as your condemnation of the growing of tobacco (page 677, Oct. 15). Think, then, how amazed I was to see tobacco-growing advertised (page 13, advertising matter, Seaboard Airline Railway, same issue). I often feel like saying amen to your articles, and slapping you heartily on the back by way of encouragement; and I trust that you will give your advertisers to understand that, if they wish to continue using your columns, they must avoid the very appearance of evil or questionable advertisements.

Lynn Valley, Ont.

ARTHUR LAING.

Many thanks, old friend, for your good-natured criticism. You are certainly right. If we protest against teaching our Ohio boys how to grow tobacco, to be consistent we ought to remember the good boys down in Florida as well. I think our good friends of the Seaboard Air Line will be quite willing to leave out the tobacco.

TYPHOID FEVER, THE HOOKWORM, AND EVEN ABSINTH RULED OUT, BUT NOT A WORD OF RECOGNITION IN REGARD TO THE RUM TRAFFIC.

Dear Uncle Amos:—A government under capitalism will ever sacrifice its privilege to make money from the vices of the weak and foolish. Our government will bear all the limelight we can throw on it, as is proven by past exposures. Something like fifteen years ago, when the People's party was working, I read the following. I quote from memory: "This liquor is placed in bond when first manufactured, to enable it to get at its best, and that the manufacturers may not be out of capital while waiting the government advances."

In other words, for which I ought, perhaps, to apologize for its lack of that "repose which marks the caste of Vere de Vere," this helljuice is bottled and barreled until it gets "good" (and hellish), and then released to do its devilish work. Do you wonder at the lack of faith in Christian civilization which is spreading over the world? If you do, consider how Christian (and civilized) England has fastened on China the curse of opium. I got this from a missionary's letter published years ago, either in a Sunday-school paper or missionary paper. I have forgotten the paper, but the statement has been confirmed later in our magazines.

Don't be angry now, like those Blatherskites and Socialists, for it is really a difficult problem to make claims on the world multiply until the end of time, and all good governments are doing their best at it. Well, this much has been done at least: The curse pronounced on man, "By the sweat of thy face shalt thou eat bread," is removed, for a favored few governments will sacredly guard investments, if it does not life, liberty, and the temptations of the young or the weak from vice. I enclose a clipping from the *Appeal to Reason*, which you may find time to read.

Exeter, Cal., Oct. 24.

J. B. COLTON.

Here is the clipping from the *Appeal to Reason*—a periodical that I do not often take the time to look at very much; but before giving this clipping, however, I wish to mention that my old pastor, Rev. A. T. Reed, said one morning in his prayer that he thanked God for his enemies as well as friends, because his enemies would tell him his faults, while his friends would not. Perhaps the *Appeal to Reason*, along this

same line, may tell us of the faults of our nation and government. I think I will take the liberty to head it:

THEY SHALL BEAT THEIR SWORDS INTO PLOWSHARES, . . . AND NATIONS SHALL NOT LEARN WAR ANY MORE.

The latest score in the great competitive game of building battleships is made by England, who announces that she will construct three more "Dreadnoughts." To-morrow Germany may be expected to come back with a plan for four more. Then it will be the move of the United States.

In the pictures displayed to attract boys to the navy a "Dreadnought" is simply a gigantic ship with smooth, beautiful lines.

But a "Dreadnought" is not built to lend beauty to the landscape, except when it is used as bait for the young. It is built to kill human beings by wholesale. It is, perhaps, the most perfect machine that the age of machinery has produced. In all the factories of the world full of factories there is nowhere else so marvelously ingenious a piece of mechanism.

On its construction the best minds of the age have been concentrated for years. The highest rewards have been held out to those who could invent some improvement—some new device that would make it more effective for its terrible purpose.

If to-day some person could devise a method by which the whole great wonderful instrument of death could be sent to the bottom with the pressure of a finger, he would be the only one who would receive greater rewards than the one who should discover a method by which this same instrument could be made still more terribly destructive.

Every portion of this marvelous mechanism is devised with but one end in view—*destruction of human life*. Its great guns are carefully built up into the most perfect pieces of metal known to man, solely in order that they may hurl life-taking missiles through hardened steel to reach the bodies of men behind those steel walls. Every device of steam and electricity that fill the most hidden corners of the whole murderous machine is constructed and cared for and brought to the highest state of perfection only that human bodies may be torn to fragments, that widows and orphans may be created, and the fishes fed with mangled human flesh.

Here capitalism reaches its climax. It pours out its energies most effectively and most freely for purposes of *murderous destruction*.

The above would look as if not only England and Germany but the United States, were getting a great way off from the beautiful sentiment in the text I have quoted. The vast sums of money needed for these great warships is taken from the hard workers and tillers of the soil; and, if I am correct, it is taking it also without their consent or approval. But, thank the Lord, the "voice of the people" is beginning to be heard and *considered*.

SOME VERY KIND WORDS AND—SOMETHING ELSE.

Dear Mr. Root:—First of all I want to say, may God bless you in all ways, and open the windows of heaven and pour out such blessings of the Holy Spirit upon you that you can say, "Thou anointest my head with oil; my cup runneth over. Surely goodness and mercy have followed me all the days of my life."

I have never met you, and, no doubt, never shall; but I should like to very much, and clasp the hand of one of God's servants who is not afraid to speak the truth without a veil over it.

Your mention of the brother and sister, p. 567, Sept. 1, interested me particularly. Just such an instance happened with a railroad man and his own daughter. Upon his entering the room she was greatly surprised but rejoiced to see him, expecting the landlady (?) back with promised "cream and cake." She said, "Why, papa! I thought you were on your run;" but all he could say was, "O my God! my own daughter."

"Why, papa! aren't you glad to see me? and isn't this a nice place?" For an answer he took her by the hand and said, "Come; let's go home." He said it nearly killed him, but caused him to see it *might* have been *another* man, and *his* a ruined girl and home. He reformed, and now has three children—the eldest a boy 20; the next a girl 18, and a boy 14.

You spoke of tobacco. I am sure it is the beginning of downfall and ruin. I never yet saw a real user that had very much real snap and vim to him, and who amounted to very much in life. He may accumulate wealth; but what is that? So do thieves and thugs. If our own minister here would, when preaching for converts (and that ought to be every sermon) simply *preach, teach, and live a pure, clean religion*, such as Christ taught, and as I firmly believe intended to be taught, we women wouldn't have to go to church and pull our skirts away, or, if no room elsewhere, sit over a pool of tobacco spit. Our minister here a few evenings ago, during prayer, had to stop to spit. He even keeps it in his mouth during service, and three times during the sermon hawk and spit on the pulpit carpet, and rub it in with his shoe. Some of our lady (?) members use snuff and tobacco, and spit on the floor at church. God help us that we may not sit by with folded hands and allow these things to exist. I have quit going to hear him preach, for the trustees will sit there and know it all, and still not a word. How hard to teach purity at home, and send our children to hear such things, and see our churches defiled!

Oct. 30.

The good sister who sends us the above letter wishes to have her name withheld, for obvious reasons. In regard to a minister who uses tobacco, she should not on that account quit going to church. I would not do that, nor advise it. Let this good sister, who, I am sure, has grace and wisdom (and if not it will be given her in answer to prayer), go to her pastor, see him alone, and tell him gently the effect of this habit on the young men in their community. Tell him this, which he can get from this journal in *Our Homes*, that not only railroad companies have declared against the use of strong drink and tobacco, but great business houses as well (see something in regard to this matter in another column) have come to the front, demanding clean men without these dangerous and filthy habits. I am sure the clergy of our land will not be backward in reforms along this line. My impression is that there are but very few ministers in any of our evangelical churches now who are users of tobacco. It debars a man entirely from entering the Methodist ministry. Some very good *old* ministers, I know, who learned the tobacco habit early in life, are still preaching; but they not only have to put up with a poor parish, but they generally get poor pay. The minister who uses tobacco is generally marked down several notches in salary provided he is hired at all. Our stenographer just informs me of a minister (of a good-sized church) whom he lately heard in Cleveland, who now uses tobacco, much against the wishes of his flock. Some of the members have tried to induce him to resign, but he stubbornly refuses, and quite a good

many of his congregation absent themselves, refusing to hear such a man preach. As a matter of course, he is what we might term a "high liver" in other respects, attending questionable places of amusement, card-playing, etc.

A KIND WORD INDEED FOR THE HOME PAPERS.

Dear Mr. Root:—My son takes your journal. The other day I picked it up and thought I would see if I could learn something about bees, and in looking through its pages I saw a part entitled "Our Homes." I read with delight and blessing to my soul your sermon on Matt. 12:46-50. It gave me a little better glimpse of my Savior, and, in truth, I can say he is the greatest asset that has ever come into my life. I enjoyed this article so much I looked up another, and I read and saw how you trusted God about the money, and then about the smoker. No, indeed, do not pay any attention to your critics. They have not been born into his kingdom; are blind as to spiritual things which must be spiritually discerned. The Lord knew at the start just what difficulties were going to beset you in regard to the smoker proposition. In the first place, he knew he could depend upon you. He knew when he impressed you to do a thing, and you were satisfied it was from him, that you would do it without quibble. He knew you would quit making the smoker you started to make, and therefore he knew just what you would be up against. He knew, also, what prayer you would also offer up to him, because you prayed in the Spirit; so, long before it was made, he began preparations for its answer. Then when you made the request the answer was nigh at hand. Bless the Lord, for he is good. Indeed, it is sweet to trust in Jesus, knowing that "he careth for you," and that all things shall work together for good to those that love the Lord and are chosen according to his purpose. May the Lord bless you, brother Root, and cause you to write many more sermons.

Denair, Cal., Sept. 13.

J. T. SNIDER.

I should hardly dare to print the above letter with its strong language of encouragement were it not that I am sure that the writer means to commend the Lord Jesus Christ and *not* your humble servant, who has been graciously permitted to speak for him a few words.

Convention Notices

The annual meeting of the Pecos Valley branch will be held at the Dickens school building, second door south of Fourth Street, on Pennsylvania Avenue, Roswell, New Mexico, Nov. 21, 1912, at 9 A. M., and with continued sessions. There is very important business to come before the association. Let all members be on hand promptly. Each and every beekeeper in the Pecos Valley and State are invited to be present.

At 2 P. M. of said date a session will be held at which all fruit-growers are invited to meet with us—especially those orchardists who believe the honey-bee and other insects are of benefit to fruit-growing.

HENRY C. BARRON, Secretary.

R. B. SLEASE, President.

WISCONSIN BEEKEEPERS' ASSOCIATION.

The thirty-fourth annual convention of the Wisconsin State Beekeepers' Association will be held at the Capitol building, Madison, December 17 and 18, beginning at 10 A. M., Tuesday.

As usual an interesting program, consisting of papers and questions, will be presented for discussion. Important legislation, to be presented to the next legislature, will be discussed.

The Northwestern Beekeepers' Association holds its annual convention at Chicago, December 19 and 20, thus giving all members an opportunity to attend both conventions at very little additional expense.

Headquarters for the beekeepers will be Simons Hotel. To secure a room you must write in advance, enclosing \$1.00.

Augusta, Wis., Nov. 9.

GUS DITTMER, Sec.

Quality and Service

This combination is an especially strong one when applied to BEE SUPPLIES, and we are prepared to give our customers both of these to the highest degree.

The standard set for ROOT'S BEE SUPPLIES was set long ago, and has been carefully maintained for years. Nothing but the best of material is put into our goods, and the workmanship is beyond criticism. Special machinery is being constantly added to make each class of work turned out even more nearly perfect and better finished. From the time the lumber goes into the factory until the packages are marked for shipment the utmost care is used, to be sure that every thing is just right—not "good enough," but the best that can be made. It costs just a little more in the first place to get such supplies; but it is a good investment from every standpoint. Cheap goods are cheap, and always will be. ROOT'S GOODS are as low in price as is consistent with the best materials and workmanship, and you forget the price in the satisfaction of having goods that you can absolutely depend upon, that fit together and are durable.

Early Orders

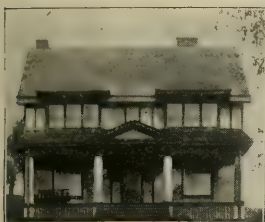
In accordance with our usual custom we are offering early-order discounts this season. This discount is 5 per cent for orders received during the month of November, and diminishes 1 per cent per month thereafter. It will pay the average beekeeper well to take advantage of this discount. He not only saves a considerable cash outlay, but there is much to be gained otherwise by ordering early. We are not so busy here at the factory as we shall be later in the season. While we always try to give the best of attention to every order at any time, early orders for special good or special packages will naturally have a little better attention than if received during the rush of a very busy season. Then, too, the beekeeper who gets his goods in early will usually have time during the winter to put these goods up ready for use himself, and save quite an expenditure for extra help for this work. The season may open unusually early in almost any locality; and if the goods are on hand all ready for use, no time is lost in the spring, when every day counts. Many good honey crops have been entirely lost by lack of foresight in these things.

If you have mislaid your catalog, send for another. Most 1912 prices will apply until the new catalogs are out. The same careful attention given to equipment for small apiaries as to large orders for quantity lots of goods.

THE A. I. ROOT COMPANY,

Factory and Home Office, Medina, Ohio.

Buy a House at Half Price



Lumber and Millwork for this House, \$1,210



Lumber and Millwork for this House, \$794



Lumber and Millwork for this House, \$839



Lumber and Millwork for this House, \$877



Lumber and Millwork for this House, \$984

Save the Dealer's Big Profits on Lumber and Millwork !

Write today for our Grand Free Catalog of 5000 Building Material Bargains.

Your new house will cost you 50 per cent less if you buy the materials here. We own and operate an immense Millwork and Building Material Plant, and sell the material for complete, modern houses, in all latest styles of architecture, **direct to home builders** at tremendous reductions from dealer's prices. We have our own lumber shipping yards in St. Louis. We ship wherever railroads go. **Quality, Safe Delivery and Satisfaction guaranteed.**

We have shipped millions of dollars' worth of building material to customers in every part of the United States. Thousands testify to the high quality, low prices and wonderful values.

Choose from 50 Plans of Fine Modern Homes

We offer our customers their choice of 50 different plans of frame, brick or stucco houses, cottages and bungalows **absolutely free of cost.** Plans made by America's foremost architects—finest you ever saw. Each plan has been built hundreds of times. Cost will never exceed estimate if you build from Gordon-Van Tine plans. We can ship all the materials to build from any of these plans on 48 hours' notice.

\$300 to \$500 or More Saved on Materials Alone

We sell you windows, doors, mouldings, frames, porch and stair materials, flooring, mantels, etc., at the same price the dealer pays. No "middle" profits added. Buy from us and save several hundred dollars on materials for a house. By using our plans you also save \$50 to \$100 in architects' fees.

Greatest of All Catalogs Free

Our big, new illustrated building material catalog is the greatest thing of the kind ever printed. Over 5000 bargains in high-grade, guaranteed millwork, lumber and building material. Write at once for **FREE** copy.

(210)

GORDON - VAN TINE CO.,

4029 Case St., Davenport, Iowa



Lumber and Millwork for this House, \$649



Lumber and Millwork for this House, \$1,106



Lumber and Millwork for this House, \$653



Lumber and Millwork for this House, \$785



Lumber and Millwork for this House, \$1,302



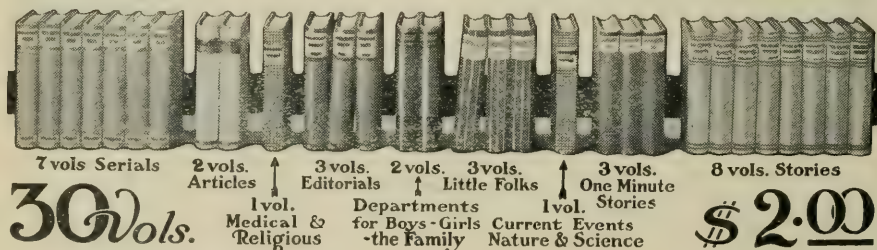
Lumber and Millwork for this House, \$626



We can't do
any better
for the
children
or ourselves
than to
take

The Youth's Companion

The contents for a year — stories, articles, and other matter — if published in book form, would make 30 volumes of the best and most varied reading.



There will be seven splendid serials and 250 other stories; there will be articles by Speaker Champ Clark of the House of Representatives, by Governor Harmon of Ohio, by Admirals and Generals, and other distinguished men and women. You can get a full account of them in the Announcement for 1912, which is sent to any address free.

**HOW TO
GET THE
FREE
ISSUES**

EVERY NEW SUBSCRIBER who at once cuts out and sends this slip (or mentions this publication) with \$2.00 will receive free **ALL THE REMAINING 1912 ISSUES** including the beautiful Holiday Numbers for Thanksgiving and Christmas; also free **THE COMPANION'S WINDOW TRANSPARENCY AND CALENDAR** for 1913, the most exquisite souvenir ever given Companion readers.

THEN THE YOUTH'S COMPANION to January, 1914—long hours of companionship with the wise, the adventurous, the entertaining—all for less than 4 cents a week. GM 90

THE YOUTH'S COMPANION, BOSTON, MASSACHUSETTS

Cleanings in Bee Culture



VOL. XL. DEC. 1, 1912, NO. 23.

Cleanings for 1913

The six special numbers for 1912 were received with such enthusiasm that we have decided to outdo our efforts of last year, and we take pleasure, therefore, in presenting the following special numbers for 1913:

Jan. 1--Beginners' Number

Experiences and mistakes of beginners. Beginners' questions. An experience with a swarm of black bees.

Feb. 1--Old-timers' Number

It is a matter of great pride to us that nearly sixty of our present readers were with us back in the "Windmill Days," more than forty years ago, when GLEANINGS first made its feeble start. We have letters from these men that are intensely interesting to the beekeeper of to-day, and we shall publish them. We intend this issue to be a glimpse of beekeeping in by-gone days. In this historical number we hope to show something of the drawbacks that had to be met when beekeeping was in its infancy. Many lessons may be learned by reading history.

March 1--Women's Number

There have been repeated requests for a special number devoted to beekeeping for women. There were many requests for this last year, and we are at last prepared to furnish what we believe is a splendid array of material from

our beekeeping sisters who have made a success with their bees. There are thousands of other women who would be glad to take up bees were it not for their natural timidity, or their fear of stings. This number will serve, not to point out an easy path toward success, but to show how difficulties in the way may be surely overcome.

April 1--Out-apiaries

Ever since our special number on automobiles was out we have received complimentary letters regarding it, and requests for more particular information of the same kind. In this special number we propose to have a full discussion of the automobile as used in out-apiary work, both for hauling and for going to and from the yard. In this number there will also appear many articles regarding the equipment used at out-apiaries as outlined in our editorial, page 610, October 1.

May 1--Swarming and Increase In the North, South, East, and West

This is a subject that is of vital interest to every beekeeper in every locality, and no list of special subjects would be complete

without it. We shall make an effort this year to have articles from all parts of the country, so that no one can complain that the directions given do not apply in his special locality.

July 1--Marketing Honey

We already have a number of splendid articles from experts in this line. Beekeepers are waking up to the possibilities of selling their crop as never before, and those who have heretofore sold at any old price are beginning to realize the mistake they are making. This number will be full of practical suggestions for profitably disposing of the crop.

Aug. 1--Beekeeping as a Recreation

In addition to the army of men and women who are making beekeeping their sole occupation, there is a rapidly increasing number of professional men, lawyers, doctors, ministers, teachers, etc., who find beekeeping a delightful avocation. In this special number some of them will tell why beekeeping is so admirably suited for this purpose. Some "big men" are going to contribute to this number.

We are proud of the fact that GLEANINGS has never had to go begging for material. We have never seen the time yet when we did not have more good articles on hand than we could possibly use. Nevertheless, in spite of this, we are going to solicit this year a large number of the special articles mentioned above. We are not merely going to fill up our pages; we are going to try to give you the very best that we can obtain. Is all this only an introduction to prepare the way for an announcement of a higher subscription rate? It is not. The price remains the same—one dollar per year.

Prepare for Next Season and Save 4 Per Cent on all "falcon" BEE SUPPLIES

"FALCON" hives are made of the best lumber obtainable for the purpose, the knotted parts being cut out, the waste pieces being used in a line of toy blocks requiring only small cuts. This leaves a clear surface; that's why we have the reputation of making the finest supplies in the country.

"FALCON" foundation. We make it in our own plant. The best grades of pure beeswax only are used. Special prices for quantities.

Our old customers who use special-size sections, foundation, frames, etc., should order now. Later, when the rush is on, it's hard for us to take care of you.

A copy of Simplified Beekeeping postpaid for the asking.

We can give orders prompt attention. We guarantee satisfaction. A trial will convince you.

Dealers Everywhere.

Red Catalog Postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

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500 Rooms

European Plan

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The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

**M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.**

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature

Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

PROTECTION HIVE

The best and lowest-priced double-wall hive on the market. This hive has $\frac{3}{4}$ material in the outer wall, and is not cheaply constructed of $\frac{1}{2}$ material as are some other hives on the market. Packing or dead-air space as you prefer. Remember, winter is approaching. Get your bees into comfortable quarters before it is here.

Send for a catalog.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except from the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Nov. 20.

BLAKE-LEE CO.

KANSAS CITY.—The supply of both comb and extracted honey is large, the demand fair. We quote No. 1 white comb, 24-section cases, \$3.25; No. 2 ditto, \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 8½ to 9. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Nov. 18.

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light-amber, 8c; strained, 6½ to 7. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, Nov. 9.

ZANESVILLE.—There is still a pretty good demand for honey, especially comb. Very little is being offered by producers at the present time. For best grades of white-clover comb, 18 to 19 is being received, with prices slightly lower on quantity orders. For best white extracted in 60-lb. cans, 9 to 11 is asked, according to quantity. Producers are receiving for beeswax 28 cts. cash, 30 in exchange for supplies.

Zanesville, O., Nov. 18.

E. W. PEIRCE.

ST. LOUIS.—There is a good demand for new comb honey in this market, especially for the better grades. Fancy white will bring from 16 to 17 cents per pound. No. 2, 15; light amber, 12 to 14; dark, 9 to 11. Choice white California honey is offered here at \$3.40 to \$3.50 per case for No. 1; No. 2, \$3.25. Dark and inferior honey is not in demand, and is very difficult to sell. The demand for extracted honey is only fair. Light-amber Southern, in barrels and half-barrels, will bring 7 cents; in five-gallon cans, 7½. The receipts of white-clover honey and California honey are still small, and could be quoted at 9 to 9½. Beeswax is in good demand at 30 cents for prime. Inferior and impure sells for less.

St. Louis, Nov. 19. R. HARTMANN PRODUCE CO.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

The Best Time to Buy Supplies

The season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow **BEFORE** it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—4 per cent for cash orders sent in December, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor. Editor Home Dep't. Ass't Editor. Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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NEW YORK.—Comb honey keeps in fair demand for all grades at unchanging prices. The various grades of white honey are still coming in, while buckwheat seems to be extremely short. Extracted honey is in fair demand, with sufficient supplies of all grades except California white sage, which seems to be scarce this season. Prices run the same. Beeswax is quiet at 30 to 31.

New York, Nov. 18. **HILDBRETH & SEGELKEN.**

INDIANAPOLIS.—White comb sells at 18 cts. in ten-case lots; No. 1 white, one cent less. Amber comb in slow demand, and at lower figures. Best extracted sells at 11 to 12 cents in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers; and it is surmised that some are holding for higher prices; but at higher prices the demand would cease. Beeswax is in good demand, and producers are being paid 30 cents per pound.

Indianapolis, Nov. 20. **WALTER S. POWDER.**

SCHENECTADY.—Our market is nearly bare of all grades of honey. There is a small stock of clover which will be cleaned up before the holidays, but no buckwheat is in sight. This is a desirable condition, for there is very little demand after Dec. 1, and we also note that comb honey is commencing to candy again this season, and in that condition it is unsalable except at a very low price. Prices are unchanged from our last report.

Schenectady, Nov. 20. **C. MACCULLOCH.**

LIVERPOOL.—Since we last reported to you we have had a better demand for honey. There have been fair sales of Chilean, amounting to about 1.0 barrels, at \$7.68 to \$9.12 for pile X; \$7.20 to \$7.44 for pile 1; \$6.72 to \$6.96 for pile 2; \$6.24 to \$6.72 for pile 3, and \$6.00 per cwt. for No. 2 pile. There have also been fair sales of Californian at \$10.20 to \$11.28; and of Jamaican at \$6.58 to \$8.16. There is a good stock of the latter description; but other varieties of honey are rather scarce. Some 30 cases of fine New Zealand have also been sold at \$10.80. Quotations are as follows: Haitien, \$6.24 to \$7.92 per cwt.; Peruvian, \$5.76 per cwt.; Chilean, \$5.76 to \$8.16 per cwt.; Jamaican, \$6.00 to \$8.40 per cwt.; Californian, \$5.60 to \$11.04 per cwt. Our beeswax market is overstocked and very dull. The only sales we have to record are on c.i.f. terms, one ton at \$35.68 per cwt., net cash, and 1½ tons at \$35.08. This is the ordinary Chilean beeswax. African sorts are steady, and business has been doing at last prices. Quotations are as follows: Chilean, \$33.88 to \$39.92; African, \$32.64 to \$34.48; West Indies, \$31.44 to \$33.28.

Liverpool, Nov. 5.

TAYLOR & CO.

THREE ADVANTAGES

There are three distinct advantages in depositing your money with the Savings Deposit Bank Company.

First, this institution provides entire safety. It is under the supervision of the State Banking Department of Ohio.

Second, it is convenient. You can send your deposits by Money Order, Check, Draft, or Registered Letter.

Third, by depositing your money with this bank you receive a substantial rate of interest—4 per cent per annum, compounded twice a year.

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E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier.

THE BANK THAT PAYS 4 PER CENT

CINCINNATI.—It seems that fruit and preserves have full sway of the market at the present time, owing to the low prices of these commodities, thus making the demand for honey suffer. However, we are selling fancy comb honey at \$3.75 to \$4.00 a case. Our best grade of extracted honey in 60-lb. cans we are selling at 8½ to 10, and amber honey in barrels at 6½ to 8, according to the quality and quantity purchased. For choice bright-yellow beeswax we are to-day paying 28 cts. per lb. delivered here.

THE FRED W. MUTH CO.

Cincinnati, Nov. 22.

Is Your Association among this Lot of Live Ones? If Not, Why Not?

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PECOS VALLEY—Henry C. Barron.....
Hagerman, New Mexico
PENNSYLVANIA—H. C. Klinger.....Liverpool, Pa.
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for conventions.
Write for them for
your convention.

The National Beekeepers' Association,

E. B. Tyrrell, Secretary,

230 Woodland Avenue. - - - Detroit, Michigan.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

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WHY NOT GET ALL THE WAX?

It is an actual fact that twenty to forty per cent of the wax is thrown away in melting up old combs in the ordinary way. You can not get all the wax without applying pressure as well as heat. The HATCH PRESS has been built to stand this enormous strain, and at the same time is inexpensive to buy, and costs little to operate. It has been on the market for several years, and has "made good" everywhere. Listen a minute while we read you Mr. Wagar's letter:

Flat Rock, Mich., Feb. 1, 1911.

M. H. Hunt & Son,
Lansing, Michigan.

Dear Sirs:

I have had good success with the Hatch press. It more than paid for itself by the wax I secured by putting some slumgum from the solar extractor through it. I secured 32 lbs. of nice wax from the slumgum. Heretofore I had thrown it away.

I secured about three pounds of wax from every eight combs I put through it. Without it I did not get half that much. If plenty of water is used, once through the press is enough. I could not get enough wax the second time to pay for the time and fuel doing it.

I have not used it all day, so can not say how much I could render in a day. The press is perfectly satisfactory to me.

Very truly yours,

D. I. WAGAR.

P. S.—I was agreeably surprised by the amount of wax I secured from the slumgum.

Ask Yourself These Three Questions:

Would you like to get 32 lbs. of nice wax from slumgum?

Would you consider it a good investment to pay \$6 for a machine that would make \$10 worth of produce out of waste matter?

Did you notice that he said that it was "nice wax"?

Special Offer: We are making a special offer on the Hatch Press. If you want to produce MORE BEESWAX write us at once. Offer applies to any State in the Union.

M. H. HUNT & SON, LANSING, MICH.

Opposite Lake Shore Depot

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We keep in stock several styles of honey-jars—No. 25 heavy flint glass, \$4.75 gross.

Write for price on comb or extracted honey. Catalog of every thing a beekeeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
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JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MO.



"If goods are wanted quick, send to Pouder."

BEE SUPPLIES

**Glass and Paper Honey
jars, Hives, Comb and
Extracted Honey. . .**

An up-to-date stock of every thing used in connection with the bee and honey industry. On Bee Supplies I am offering liberal discounts for early orders, and I have all of the newest equipments, and very choicest in quality, that can be produced—Root Goods—with the advantage of having them shipped from Indianapolis. No one has ever endured an unfair deal from this house, and none shall ever occur; and when you place a trial order here I expect not only to have further orders from you, but that you will recommend my methods to your neighbors. Beekeeping is no longer an experiment, but a safe investment; and with modern equipments returns are fair, even during the poorer seasons.

WALTER S. POWDER:—Goods ordered from you arrived to-day as fine as silk. Thanks. I have had a poor year, and season now closing, with an average of 65 lbs. of comb per colony, and most of it spoken for at 25 cts. per section. Best wishes.

Knox, Ind.

JAS. ARNOTT.

If you are in need of finest honey to supply your local demands I can supply you.

I can use more beeswax on cash or trade basis, and you will find me prompt with returns.

I should like to place my catalog in your hands.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

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Your money in the savings bank is drawing 3 per cent, or at most 4 per cent interest. Here is an opportunity to invest it at 12 per cent—8 per cent more than it is now earning.

In most localities this has been a good season for honey and for making increase. Prospects were never better than for the coming season, and you are almost certain to be needing supplies in the spring. If you wait until the first of April or later, you must pay full catalog prices. If your order and remittance are sent in during December, a discount of 4 per cent will be allowed. Four per cent on money invested for four months is equivalent to 12 per cent per annum, figured for four months' time. It looks good, doesn't it? Why not effect this saving by ordering now, and thus secure the peace of mind that will result from having your supplies all ready when you need them most? Your order can be sent in now, and the goods will be shipped at any time to suit your convenience.

Best goods, best service, best treatment, are insured by sending your orders to OHIO'S BEE-SUPPLY CENTER—special headquarters for bee-keepers in Ohio, West Virginia, and western Pennsylvania. If you haven't a catalog, ask for it.

EDMUND W. PEIRCE
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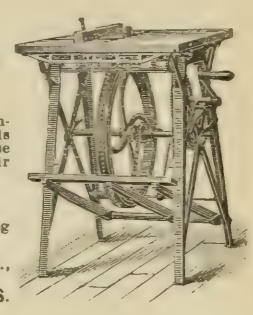
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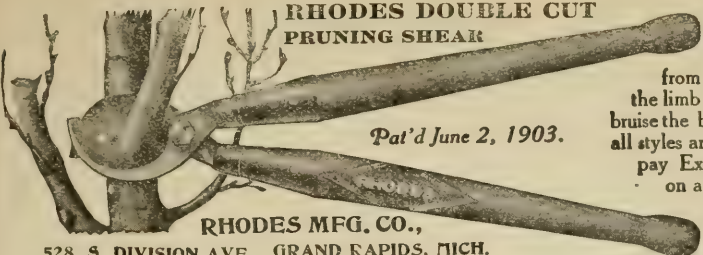
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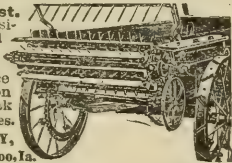
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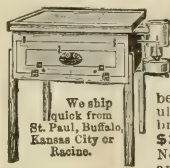
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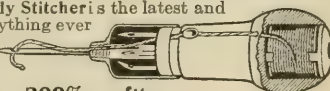


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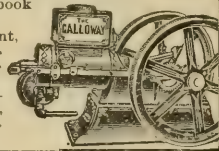
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F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

INDIAN RUNNER DUCKS

Runners, hundreds, light fawns, also dark penciled, white egggers; \$1.00 and up.
R. O. DICKSON, Box 28, La Harpe, Ill.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS.—American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.
C. O. YOST, Rt. 4, Box D, Winchester, Ind.

POULTRY

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

Crystal Spring Farm, Rt. 3, Lititz, Pa.

MISCELLANEOUS

FOR SALE.—A dog, coon hound; guaranteed to run coon.
JOHN DRENTH, Kersey, Ind.

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

MICROSCOPE.—Six powers, from 45 to 200 diameters. Shows well the difference in size and form of blood corpuscles of man, chicken, and frog. Been used, but good as new. Send for interesting and instructive circular. J. F. PHIN, Paterson, N. J.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred, and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

A GIFT WITH A THOUGHT IN IT.

There's one very simple way out of the Christmas shopping problem; don't shop, but sit quietly at home and subscribe for The Youth's Companion. The chances are, too, that no present you could buy for the young friend or the family you delight to honor could confer so much pleasure as this gift of The Youth's Companion for a whole round year—fifty-two weeks' issues, and the fifty-second as keenly anticipated and enjoyed as the very first.

There will be stories for readers of every age; sound advice as to athletics; suggestions for the girl at college or making her own way in the world; good things for every member of the family—all for \$2.00—less than four cents a week.

The one to whom you give the subscription will receive free all the remaining issues of 1912, as well as The Companion Window Transparency and Calendar for 1913, in rich, translucent colors. It is to be hung in the window or over the lampshade. You, too, as giver of the present will receive a copy of it.

THE YOUTH'S COMPANION,
144 Berkeley St., Boston, Mass.
Adv't.

New Subscriptions Received at this Office.

CHURCH MEMBERS AND INTemperance.

I have been interested in your articles on intemperance. I have fought intemperance in all its forms from boyhood, and expect to fight it the remainder of my days. I belong to no church; but reading your articles has often brought tears to my eyes when I think of the church-members who uphold intemperance.

Milano, Texas, Aug. 23.

G. W. BEARD.

SPECIAL NOTICES

By OUR BUSINESS MANAGER

BIG SAVING DEMONSTRATED; U. S. GOVERNMENT MAKES SIGNIFICANT TESTS OF TOOL-GRINDING MACHINES.

The United States Government has recently been making some very interesting and instructive tests of various tool-grinding machines, and the result is an official recommendation to its various forestry and improvement camp supervisors throughout the country.

The machine found best adapted for the sharpening of Uncle Sam's tools had a grinding capacity per hour of five double-bitted axes, medium dull or as newly purchased. This work required the labor of only one man. In comparison it took two men five hours to grind five similar axes on a good ordinary grindstone of 28 inches diameter. Figuring the cost of labor at \$2.50 a day, the expense of putting an ax in first-class shape with the machine was 6 1/4 cents, as against 62 1/2 cents with the grindstone. This is equivalent to a saving of \$22.50 in one day's steady run.

EXTRACTED HONEY.

We have secured some of the finest extracted honey this season, and can ship promptly at the following special prices:

WHITE CLOVER, the standard honey of the East. In case lots of two five-gallon cans, 120 lbs. at ten cents per pound; in five-case lots at 9 1/2 cts., and in ten-case lots at 9 cts. Or we can furnish it in one-gallon screw-top cans at \$1.60 per gallon in one-gallon lots, or \$1.50 per gallon in ten-gallon lots.

SWEET CLOVER, very fine, at the same price for all quantities named as the white clover.

ALFALFA, preferred by many, and a little cheaper. Case lots at 9 1/2 cts.; five cases at 9 cts.; ten cases at 8 1/2 cts.; in one-gallon cans at \$1.50; ten cans at \$1.40.

AMBER, from the fall flowers of different localities, 8 1/2 cts. per pound in case lots; 8 cts. in five-case lots, and 7 1/4 cts. in ten-case lots. In one-gallon cans, \$1.30 per gallon; \$1.20 per gallon in ten-gallon lots.

If you are interested in buying twenty cases or more of one kind or assorted, write us for special prices.

At this season of the year nearly all of the honey is candied. If you want it in the liquid state, please mention this when ordering.

SWEET-CLOVER SEED.

Judging from our experience in securing a supply of sweet-clover seed, and the reports we get from others who handle this seed, there is going to be a big shortage of seed to supply the demand for the coming season. The interest in this clover as a soil-restorer continues to grow and increase with a corresponding increase in the demand for seed. The weather was so wet and unfavorable during the time that seed is saved that we are not receiving one-fourth the amount we had reason to expect on our contracts three months ago. In putting the unhulled seed through the clover-huller the shrinkage in weight has been greater than it was last year. Taking these facts into account we are not in a position to make as low prices on seed as we had hoped to make.

We now have a good supply of new seed, all of which has so far come to us with the hulls on. We have put it through a clover huller, and re-cleaned it so that we can offer it, both hulled and unhulled, as follows:

PRICE LIST OF SWEET-CLOVER SEED.

Hulled white biennial (*Melilotus alba*), 1 lb., 24c; 10 lbs., \$2.20; 25 lbs., \$5.25; 100 lbs., \$20.00.

Unhulled white ditto, 1 lb., 17c; 10 lbs., \$1.50; 25 lbs., \$3.50; 100 lbs., \$13.00.

Hulled yellow biennial (*Melilotus officinalis*), 1 lb., 28c; 10 lbs., \$2.60; 25 lbs., \$6.25; 100 lbs., \$24.00.

Unhulled yellow ditto, 1 lb., 21c; 10 lbs., \$1.90; 25 lbs., \$4.50; 100 lbs., \$17.00.

Hulled yellow annual (*Melilotus Indica*) 1 lb., 14c; 10 lbs., \$1.20; 25 lbs., \$2.75; 100 lbs., \$10.00. Samples mailed free on request.

SPECIAL NOTICES

A. I. ROOT

WHO, WHERE, AND WHEN.

Our readers will notice or have noticed, perhaps, that almost every communication that finds a place in GLEANINGS gives the date as well as name and address; and I am sorry to say that a great part of our agricultural papers do not seem to recognize the importance of dates. Every little while somebody writes in regard to late planting for certain grains or vegetables. He often adds, "The seed should be put in now without any delay." Now, what does that mean when you can not tell whether the editor had the letter on his desk a month or two or not? Somebody in a poultry journal says he finds no difficulty at all in hatching in September or October; but there is no hint in the communication as to where he lives. How much does it amount to? Again, a communication refers to something that has happened; but as soon as the event was recorded in the papers, something else has occurred that puts quite a different aspect on the matter. If the friend who wrote had dated his letter the reader could at once decide whether he knew of the final outcome; and I might enumerate ever so many other reasons why every one who reads thoughtfully has a right to know *who* is talking, *where* he lives, and *just when* he made this statement. Am I not right about it?

A NEWSPAPER THAT LOVES RIGHTEOUSNESS AND HATES INQUIRY; ALSO SOMETHING ABOUT THE INITIATIVE AND REFERENDUM.

Mr. Root:—Would you approve of a newspaper that did not announce divorces, rich weddings, rich folks' parties, murders, joy rides, colored-supplement jokes, beauty recipes, novels, etc.? I think I will send you one, with the request that you look it over and let us hear in GLEANINGS what you think of it.

I think you will approve of the advertisement regulations on page 7, July 17. You might hunt for a cigarette or liquor advertisement or patent medicine, etc. Does not this paper make you wonder if you are awake? Yet it already has about 75,000 circulation. I refer to the Los Angeles *Municipal News*, published by the city for the citizens. I send you two copies.

My brother George was one of the active workers in securing and (later) one of the attorneys in defending the initiative and referendum in California. A year ago he succeeded, by use of the now granted initiative and referendum, in petitioning for a law providing a municipal newspaper, telling the citizens about their city's business. At the election last fall his proposal on the ballot was one of the laws favorably voted on. He was called the father of the municipal newspaper, and was made the head of the commission. The two copies I mail you show what it is like. I think they will interest you.

I wish you would give the initiative and referendum some boosts in GLEANINGS. We common folks can get many good things done if we can only get hold of our ballot-boxes and have some say about affairs. As it is now, the machine manipulators run every thing. All the people get is just enough charitable gifts grudgingly allowed us by our rulers to bribe us to vote their machine election ticket. Sometimes we get a really important thing because our rulers fall out among themselves and offer a high price for votes. But since we ought not to have to serve the bosses, why not get the initiative and referendum, and ourselves vote to ourselves the things we ought to have? They do this in many States already, and I see Ohio is to do the same soon. It is particularly as a temperance man that I am interested in getting the initiative and referendum. It is our only hope in Indiana for advanced temperance action. Three parties, including the Prohibition, endorsed this year in Indiana.

Greencastle, Ind., Aug. 19. DAVE S. DUNLOP.

Our friends will see by the date that the above was sent before our Ohio election of September 3, and he is now prob-

ably rejoicing with us that we too have the initiative and referendum, and hope soon by God's grace to have woman suffrage as they have in California.

ONLY TEN POUNDS PER COLONY, EVEN IN CALIFORNIA.

The bee season is closed for 1912—one of the worst in 20 years since I started bees. It seemed to do well, and bees bred up fair, and got some honey right along, but very little surplus. I shall get only one ton, or less from 200 hives, and a lot of it has been secured since 1911, so the bees got only enough for themselves. I have always got some honey, but never a failure yet here. There are others in the same box with myself.

Well, we have more than half of this county dry. As I voted to close saloons I am well pleased; and they called me all kinds of names, as the precinct I am in went wet.

New Almaden, Cal., Sept. 25. PAT KEATING.

Never mind a small crop of honey once in twenty years, friend K.; and, more than all, do not mind being called all kinds of names because you are a "temperance crank." Remember the sure promise to all such under like circumstances. "Blessed are ye when men shall persecute you and revile you, and say all manner of evil against you falsely for my sake;" and our good friend Luke adds a tremendous emphasis to the above, for he not only says you are to rejoice and be glad when you are persecuted for being right, but even says, "Rejoice in that day, and leap for joy, for in like manner did their fathers unto the prophets."

Honey reports continued from page 2.

NEW YORK.—Honey is moving well, both extracted and comb—buckwheat honey especially. We are selling fancy white comb honey for 15 and 16; buckwheat, 11 to 13, as to quality; extracted clover, 8 to 9½; the latter price is for fancy white; buckwheat extracted, from 7 to 8.

New York, Nov. 25. CHAS. ISRAEL & BROS.

ALBANY.—Honey receipts are very light. The crop is turning out to be the lightest ever known in this section. Fancy grades of buckwheat and clover are so scarce as not to be worth quoting. No. 1 grade clover, 15 to 16; mixed, 13 to 14; extracted white, 9 to 9½; amber, 8 to 8½; buckwheat, 8 to 8½; beeswax, 30 to 32.

Albany, Nov. 25. H. R. WRIGHT.

DENVER.—We quote comb honey in a jobbing way: No. 1, per case of 24 sections, \$3.05; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light amber, 8; strained, 6¾ to 7½. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.
Denver, Nov. 21.

CHICAGO.—Sales of honey during November up to this writing have been of large volume, and yet the market is well supplied. Prices on No. 1 white comb range from 15 to 16; A No. 1 to fancy, 17 to 18; No. 2 white, 10 to 12; No. 1 to fancy amber, 13 to 15. Dark and out-of-condition lots are difficult to place at 9 to 10. Extracted honey in new cans and cases, white-clover and linden, brings from 9 to 10; amber grades, 7 to 8. Beeswax brings 30 to 32.

R. A. BURNETT & CO.

Chicago, Nov. 18.

Convention Notices

A convention of beekeepers of southern New England will be held in Arcanum Hall, 152 Weybosset St., Providence, R. I., Saturday, Dec. 7, 1912, at 2:30 P. M. and 8:00 P. M. Dr. E. F. Phillips, of Washington, D. C., will address both sessions.
Providence, R. I. ARTHUR C. MILLER, Sec.

The Ohio State Beekeepers' Association will meet in Columbus, January 14 and 15, with an evening meeting on the 14th. I am asking each member to suggest some topic for general discussion at this meeting. Help make the meeting a valuable one, and a great success.

Columbus, O., Nov. 13.

N. E. SHAW.

The Chicago-Northwestern Beekeepers' Association will hold its annual meeting at the Great Northern Hotel, Room L, 38, Chicago, on Thursday and Friday, Dec. 19 and 20. The Great Northern Hotel is situated on the corner of Dearborn Street and Jackson Boulevard, and is easily accessible from any railroad station. As Chicago is a central point there should be a good meeting as in the past. Several of the noted beekeepers have promised to be present; and as our meeting comes just after the Wisconsin meeting, a good delegation is expected from Wisconsin. All beekeepers are invited to attend.

Hamilton, Ill., Nov. 9.

L. C. DADANT, Sec.

The annual convention of the Colorado State Beekeepers' Association will be held December 12 and 13, at the Auditorium Hotel, corner of 14th and Stout Streets. The Auditorium Hotel will be headquarters for the association. The rates are \$1.00 a day and up. The hotel is new and is centrally located. The management has placed the Pompeian Room at our disposal, and a better convention room we never had. Take Colfax cars under viaduct at Union Depot and get off at 15th and Stout St. Walk half a block west to the hotel.

Every session of the convention will be a live one, and we hope for a large attendance. We will have an auto session. This will be a hummer, as we are going to have the auto dealers show us their utility cars and their winning points.

The program has not been entirely arranged for at this date, but we shall have worth-while sessions.

WESLEY FOSTER, Secretary.

We wish to call the attention of beekeepers to the opportunities offered by the The Extension Service of the Massachusetts Agricultural College, in the Ten Weeks' course, beginning January 6. A course in beekeeping is designed which will be a general practical survey of the maintenance of bees, not only for their products, but as an adjunct to modern agriculture. Special effort will be made to correlate the subject with the various phases of horticulture, namely, fruit-growing, cranberry culture, market-gardening, and greenhouse crops. Particular emphasis will be laid upon the most recent and approved appliances and systems of manipulation. The fine collection of appliances of the college will give exceptional opportunity to the serious apiculturist. For further information apply to the Director of The Extension Service, M. A. C., Amherst, Mass.

WISCONSIN BEEKEEPERS' ASSOCIATION.

The thirty-fourth annual convention of the Wisconsin State Beekeepers' Association will be held at the Capitol building, Madison, December 17 and 18, beginning at 10 A. M., Tuesday.

As usual an interesting program, consisting of papers and questions, will be presented for discussion. Important legislation, to be presented to the next legislature, will be discussed.

The Northwestern Beekeepers' Association holds its annual convention at Chicago, December 19 and 20, thus giving all members an opportunity to attend both conventions at very little additional expense.

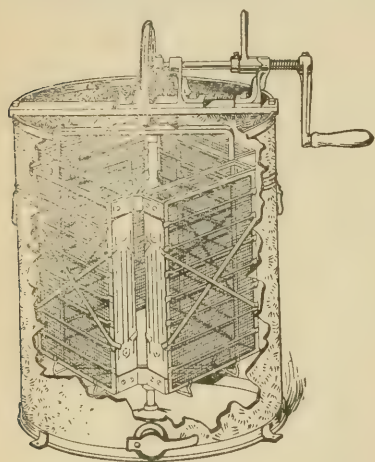
Headquarters for the beekeepers will be Simons Hotel. To secure a room you must write in advance, enclosing \$1.00.

Augusta, Wis., Nov. 9.

GUS DINTMER, Sec.

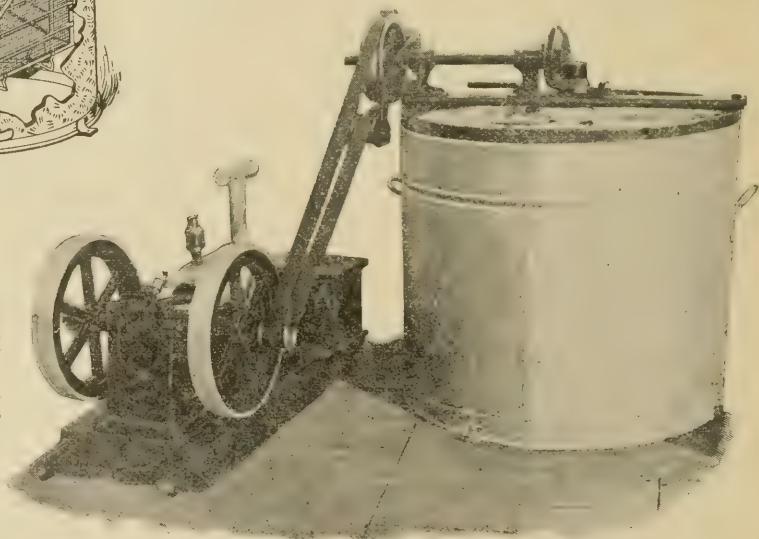
The Use of Root's

With the increased interest in and demand for the better grades of extracted honey, all beekeepers, large and small, are interested in honey-extractors. The time was when the small beekeeper thought it didn't pay to produce extracted honey, and, as a consequence, he lost quite a large per cent of the actual profit his bees might have made him. For instance, during the past summer, with the remarkable honey-flow there was in many localities, even in an apiary of ten colonies an extractor might have been made to pay for itself in a single day. Record honey-flows like this demand a rapid handling of the combs if the bees are to take advantage of the flow of nectar. They can not make new combs fast enough to store the nectar that must be gathered within a few hours, or it is lost. If the filled combs can be taken from a hive, extracted, and replaced at once, they will be filled again with astonishing rapidity, and hundreds of pounds of honey harvested that would otherwise have been lost.



A one-horse-power air-cooled gasoline-engine connected to an eight-frame extractor. For economy of floor-space and convenience of the levers this arrangement is perhaps the best.

For the small apiary the hand-run extractors are usually sufficient; but where any number of colonies are kept from which to produce honey for the market, the power-equipped extractors are by far to be preferred. Even the first cost is very moderate; and when the wonderful work done by these machines is taken into consideration it will readily be seen that the purchase of such a machine is an investment which yields the beekeeper a handsome profit.



The popularity of these machines is perhaps best estimated by reading letters received from a few of our customers who are using them, and from the fact that our trade in them is constantly increasing. We now have in the process of making, twelve Root Automatic Extractors for one beekeeper in the West, who has 2000 colonies of bees, and maintains 15 yards. Certainly this large beekeeper would not make such an investment were he not sure of results.

Honey Extractors

Our extractors are carefully made from selected materials, and with ordinary usage will last for years. All power machines are fully equipped ready for running. We make extractors in all sizes from two to eight frame, and the power machines in four, six, and eight frame size, or larger, if ordered special. The prices range from \$9.50 for a small hand-run machine to \$52 for an eight-frame power-equipped machine. A one-horse-power air-cooled engine is \$60, and a 1 $\frac{3}{4}$ horse-power water-cooled, \$65.

These machines are run by a one-horse-power gasoline-engine which may be put to so many other good uses about the place you will wonder how you ever got along without it.

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do, and more. I use the gasoline-engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiary.

Pittsworth, Queensland.

F. C. GOLDER.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not be without it now, even if I had only fifty colonies.

DAVID RUNNING.

Grindstone City, Mich., July 19, 1910.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, and sold it at 35 cts. a quart. The extractor is just fine—does the work completely.

F. D. KING.

Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all.

V. V. DEXTER.

North Yakima, Wash., Jan. 18, 1911.

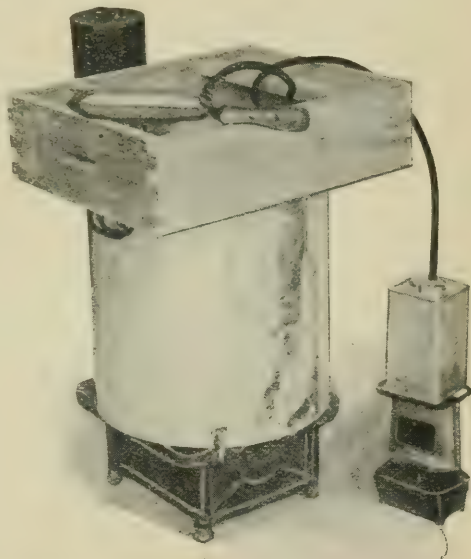
Uncapping Knife

Just a word about the new steam uncapping-knife which seems to go quite naturally with the power extractors. No more perfect device has ever been put into the hands of beekeepers, and one who has any considerable amount of uncapping to do should not be another season without this knife. Steam may be generated for this in a half-gallon can over a single-burner oil-stove. We furnish the knife complete with the hose for \$5.00, and with boiler for \$6.00.

As regards the steam uncapping-knife, I think it a grand investment, so far ahead of the cold knife that it will pay any ordinary beekeeper to have the outfit. I purchased an outfit one year ago for my home yard, and thought so much of it that I got another this year for my outyard.

WM. ELLIOTT.

Adelaide, Ont., September 28, 1911.



Root's Steam Uncapping-knife.—A half-gallon can over a single flat-wick oil-stove furnishes the steam necessary.

The A. I. Root Co., Medina, O.



No matter who gets it as a Christmas
gift all hands share in it —

THE YOUTH'S COMPANION

Athletics for the Boys; Ways to Make Money
for the Girls; Public Affairs Impartially Dis-
cussed for the Fathers; Home and Garden and
Hygiene for the Mothers; Splendid Stories for
Every One Who Enjoys Adventure and Admires
Physical Pluck and Moral Courage.

THE COMPANION WINDOW TRANSPARENCY AND CALENDAR

Every new subscriber to The Companion for 1913 will receive this exquisite
souvenir—a Transparency to be hung in the window or in front of a lamp.
Through it the light shines softly, illuminating the design—a figure of Autumn
laden with fruits; and all around, wreathed in purple clusters of grapes and green
foliage, is the circle of the months. IT IS THE MOST ATTRACTIVE GIFT
EVER GIVEN TO COMPANION SUBSCRIBERS.

Christmas Present Coupon

Every new subscriber who at once cuts out and sends this coupon
or mentions the name of this publication with \$2.00 for the new
1913 volume of The Youth's Companion will receive:

Gift 1.

All the issues of The Youth's Companion for the
remaining weeks of 1912, including the Holiday
Numbers. KD 90

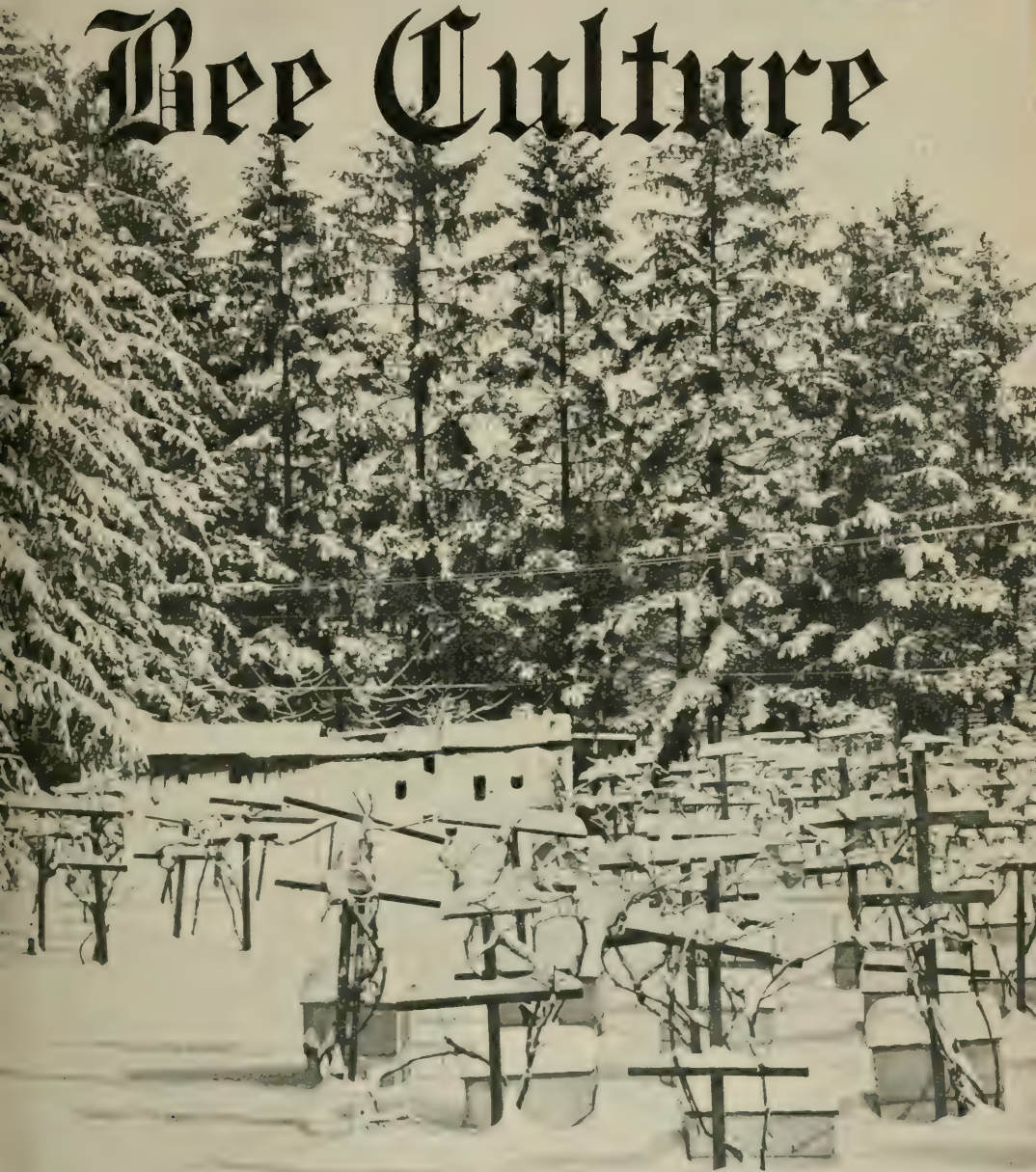
Gift 2.

The Youth's Companion Window Transparency
and Calendar for 1913, the most exquisite souvenir
ever given to Companion readers.

Then the fifty-two issues of 1913—long hours of
companionship with the wise, the adventurous, the
entertaining—all for less than four cents a week.

THE YOUTH'S COMPANION, BOSTON, MASS.

Cleanings in Bee Culture



VOL. XL. DEC. 15, 1912, NO. 24.

Gleanings in Bee Culture

. . . and the . . .

Weekly Inter Ocean and Farmer

Both a Full . . . **\$1.25**
Year for Only

All the News of the World and Home

Only 25 Cents more than the Price of Gleanings Alone

The Weekly INTER OCEAN and FARMER

is truly a Great Weekly Paper, and is the only Weekly published by a Chicago Daily. Thus THE WEEKLY INTER OCEAN AND FARMER'S special advantages in securing and printing important world's news are clearly obvious.

The World's Greatest Live Stock, Grain, and Produce Markets are in Chicago, and are Most fully and accurately reported by THE WEEKLY INTER OCEAN AND FARMER.

When you add the special features of its own various attractive departments, such as Home Health Club, Lost and Found Poems, Chess and Checkers; Field, Farm, Garden, and Veterinary Topics; Complications, Modes and Pattern Department, Sunday School Lessons, etc., you will realize and appreciate the big money's worth given in each issue of THE WEEKLY INTER OCEAN AND FARMER at its subscription price of \$1.00 per year.

**These features, together with a Special Magazine Department
Make up the Leading Farm, Home, and News Paper of the West**

OUR OFFER	{ The Price of the Weekly Inter Ocean and Farmer remains \$1.00 a Yr.
	{ The Price of Gleanings in Bee Culture is 1.00 a Yr.
	{ The Two Papers each one year will cost only 1.25

N. B.—This special arrangement with The Weekly Inter Ocean and Farmer is for a limited time only. Subscribers to the Weekly Inter Ocean and Farmer are assured that no papers will be sent after their subscriptions expire unless their subscriptions are renewed by cash payments.

Prepare for Next Season and Save 4 Per Cent on all "falcon" BEE SUPPLIES

"FALCON" hives are made of the best lumber obtainable for the purpose, the knotted parts being cut out, the waste pieces being used in a line of toy blocks requiring only small cuts. This leaves a clear surface; that's why we have the reputation of making the finest supplies in the country.

"FALCON" foundation. We make it in our own plant. The best grades of pure beeswax only are used. Special prices for quantities.

Our old customers who use special-size sections, foundation, frames, etc., should order now. Later, when the rush is on, it's hard for us to take care of you.

A copy of Simplified Beekeeping postpaid for the asking.

We can give orders prompt attention. We guarantee satisfaction. A trial will convince you.

Dealers Everywhere.

Red Catalog Postpaid.

W. T. FALCONER MFG. COMPANY, FALCONER, N. Y.

How to Produce

EXTRACTED HONEY

THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail, with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey."

Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

THE A. I. ROOT COMPANY

NEW YORK

MEDINA, O.

CHICAGO

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS
... are in the ground, the waters,
the plants, the heavens, and how
to come at these enchantments, is
the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature

Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. Tells a beginner's experiences in a way to help other beginners.

PRICE \$1.10 POSTPAID.

The A. I. Root Co., Medina, Ohio.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except from the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weigh-

ing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Dec. 6.

BLAKE-LEE CO.

CHICAGO.—The receipts of honey have been in excess of the sales during the past month, so that now stocks are quite heavy. Prices have changed but little, and if any thing they are lower on both comb and extracted. Beeswax is still in demand at 30 to 32 per lb.

Chicago, Dec. 4.

R. A. BURNETT & Co.

SCHENECTADY.—We note a considerable falling off in demand for comb honey, and customers are buying cautiously, having learned from experience that honey meets with neglect during the holidays. Extracted is in good demand, with no buckwheat to offer. We quote fancy white in paper cartons, 15 to 16; No. 1, 14 to 15; No. 2 and mixed, 12 to 13; buckwheat, 13 to 14; extracted, light, 8 to 9; amber, 7 to 8.

Schenectady, Dec. 3. CHARLES MACCULLOCH.

ZANESVILLE.—The demand for honey is rather better than is usual so near the holidays. Producers have either disposed of their stock or are holding back their crop for higher prices, which are not now very likely to materialize. Best grades of white comb are selling to the retail grocery trade at 18 to 19; best white extracted in five-gallon cans brings 9 to 10, with rather slack demand. Producers are receiving for beeswax 28 cts. in cash, 30 in exchange for bee supplies.

Zanesville, Dec. 2.

E. W. PEIRCE.

ST. LOUIS.—There is a good demand for new comb honey in this market, especially for the better grades. Fancy white is bringing from 16 to 17; No. 2, 15; light amber from 12 to 14, and dark from 9 to 11. Choice California comb honey is offered at \$3.25 to \$3.50 per case. The demand for extracted honey is only fair the past two weeks. Light-amber Southern, in barrels and half-barrels, will bring 7 cents; in five-gallon cans, 7½; light-amber California extracted, 8½ to 9; water-white, 9 to 9½. Beeswax is in good demand at 30 cents for prime; inferior and impure, less.

St. Louis, Dec. 3. R. HARTMANN PRODUCE CO.

SURE, OLD COMBS ARE VALUABLE

IF shipped to us for rendering. . . WE EXTRACT 99½ per cent OF WAX, and then pay you Highest Market Prices, or 2 cents additional in trade. . . YOU CAN'T APPROACH THAT FOR PROFIT. . . We need great quantities of Comb and Extracted Honey. . Write us.

THE FRED W. MUTH CO.

"The Busy Bee Men"

51 Walnut Street

Cincinnati, Ohio

The Best Time to Buy Supplies

The season just past has demonstrated more clearly than ever the necessity for being prepared for a honey-flow **BEFORE** it comes. If you wait until the season is upon you, the chances are that the greater part of the crop will be lost while you are impatiently waiting for supplies to arrive. It may seem a little early now to think of next season's honey harvest; but the fact of the matter is, this is just the time to order goods for next season.

We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—4 per cent for cash orders sent in December, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor.

A. I. ROOT

Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

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CINCINNATI.—We are selling fancy comb honey at \$3.75 to \$4.00 a case; fancy extracted honey at 8½ to 10; amber honey at 6½ to 8, according to the quality and quantity purchased. For choice bright-yellow beeswax we are paying 28 cts. delivered here.

Cincinnati, Dec. 3. THE FRED W. MUTH CO.

DENVER.—We quote comb honey in a jobbing way, No. 1, \$3.05 per case of 24 sections; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light-amber, 8 to 8 1-3; strained, 6¾ to 7½. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Dec. 6.

ALBANY.—The honey market is quiet, with very light receipts of any good comb honey. Any fancy clover or buckwheat comb honey is selling high if in good order—16 cts. for clover; 15 for buckwheat; if mixed, and more or less candied, as so much is, it has to sell at buyer's offer. This is proving to be the shortest crop of honey we ever experienced. Buckwheat extracted brings 8; clover, 8½. Beeswax, 30 to 32.

Albany, Dec. 5. H. R. WRIGHT.

CINCINNATI.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at \$3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-lb. cans is selling from 9½ to 10 cts.; light amber in barrels, 7 to 7½; in 60-lb. cans, 8 to 8½. Beeswax, fair demand, sells at \$33.00 per cwt. The above are our selling prices, not what we are paying.

Cincinnati, Dec. 3. C. H. W. WEBER & Co.

INDIANAPOLIS.—White comb sells at 18 cts. in ten-case lots; No. 1 white, one cent less. Amber combs in slow demand, and at lower figures. Best extracted sells at 11 to 12 cents in 5-gallon cans. Comb honey seems to be in excessive demand, and very little is now being offered by producers; and it is surmised that some are holding for higher prices; but at higher prices the demand would cease. Beeswax is in good demand, and producers are being paid 30 cents per pound.

Indianapolis, Dec. 10. WALTER S. POWDER.

LIVERPOOL.—During the past fortnight there has been no business of any importance put through in honey. Quotations remain unchanged as follows: Haitien, \$6.24 to \$7.92 per cwt. Peruvian, \$5.76 per cwt.; Chilian, \$6.24 to \$9.12; Jamaican, \$6.60 to \$8.16; Californian, \$10.20 to \$11.40. The only sales of beeswax are 12 bags at \$34.24, and 5 at \$34.68, both Chilian. Quotations are as follows: Spanish, \$33.88 to \$39.72; African, \$32.64 to \$34.48; West Indies, \$31.44 to \$36.28.

Liverpool, Nov. 21. TAYLOR & Co.

The A. I. Root Co.—I enclose subscription for Frank Eis. Mr. Eis has been a beekeeper many years. Two years of that time he had an entire failure of crops, and his bees not only paid all expenses of their living but furnished the money to buy corn to keep his hogs and other stock. He had no winter loss last year.

Humboldt, Neb., Aug. 23. J. L. GANDY.

The A. I. Root Co.—I enclose herewith a check for \$2.25 to cover my subscription to GLEANINGS IN BEE CULTURE and the A B C of Bee Culture. I kept bees in Virginia several years, and moved here a year ago. This spring I bought a colony of bees, increased to four colonies, and have over 100 lbs. of fine section honey, and this in a place where bees have never been kept before, and several miles to the alfalfa-fields. I find it a delightful pastime and an absorbing recreation for one confined as I am to a specialist's office. I should not know how to keep house without GLEANINGS, so do not stop it at any time.

Helena, Mont., Sept. 10, 1912. DR. W. M. COPENHAVER.

YOUR BANK

should be a strong institution, such as the Savings Deposit Bank Company of Medina.

You can deposit your money in this bank no matter how far you live from Medina. We receive deposits by mail. One dollar will open a savings account on which 4 per cent compound interest is paid.

We shall be pleased to give further information upon request.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS.

A. T. SPITZER, Pres.
E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

THE BANK THAT PAYS 4 PER CENT

FOUR PER CENT DISCOUNT FOR DECEMBER CASH ORDERS

To those who buy now for next season, sending remittance with the order during the month of December subject to the conditions named below, we allow 4 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tined wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order, the discount may be deducted from the whole order, including these items which are otherwise excepted.

THE A. I. ROOT CO., MEDINA, O.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Bills payable monthly.

No medical or objectionable advertising accepted.

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WHY NOT GET ALL THE WAX?

It is an actual fact that twenty to forty per cent of the wax is thrown away in melting up old combs in the ordinary way. You can not get all the wax without applying pressure as well as heat. The HATCH PRESS has been built to stand this enormous strain, and at the same time is inexpensive to buy, and costs little to operate. It has been on the market for several years, and has "made good" everywhere. Listen a minute while we read you Mr. Wagar's letter:

Flat Rock, Mich., Feb. 1, 1911.

M. H. Hunt & Son,
Lansing, Michigan.

Dear Sirs:

I have had good success with the Hatch press. It more than paid for itself by the wax I secured by putting some slumgum from the solar extractor through it. I secured 32 lbs. of nice wax from the slumgum. Heretofore I had thrown it away. I secured about three pounds of wax from every eight combs I put through it. Without it I did not get half that much. If plenty of water is used, once through the press is enough. I could not get enough wax the second time to pay for the time and fuel doing it.

I have not used it all day, so can not say how much I could render in a day. The press is perfectly satisfactory to me.

Very truly yours, D. I. WAGAR.

P. S.—I was agreeably surprised by the amount of wax I secured from the slumgum.

Ask Yourself These Three Questions:

Would you like to get 32 lbs. of nice wax from slumgum?

Would you consider it a good investment to pay \$6 for a machine that would make \$10 worth of produce out of waste matter?

Did you notice that he said that it was "nice wax"?

Special Offer: We are making a special offer on the Hatch Press. If you want to produce MORE BEESWAX write us at once. Offer applies to any State in the Union.

M. H. HUNT & SON, LANSING, MICH.

Opposite Lake Shore Depot

HONEY - JARS

We keep in stock several styles of honey-jars—No. 25 heavy flint glass, \$4.75 gross.

Write for price on comb or extracted honey. Catalog of every thing a beekeeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
BEEKEEPERS' SUPPLIES

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the beekeeper. Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MO.



"If goods are wanted quick, send to Pouder."

BEE SUPPLIES

**Glass and Paper Honey
jars, Hives, Comb and
Extracted Honey. . .**

An up-to-date stock of every thing used in connection with the bee and honey industry. On Bee Supplies I am offering liberal discounts for early orders, and I have all of the newest equipments, and very choicest in quality, that can be produced—Root Goods—with the advantage of having them shipped from Indianapolis. No one has ever endured an unfair deal from this house, and none shall ever occur; and when you place a trial order here I expect not only to have further orders from you, but that you will recommend my methods to your neighbors. Beekeeping is no longer an experiment, but a safe investment; and with modern equipments returns are fair, even during the poorer seasons.

WALTER S. POWDER:—Goods ordered from you arrived to-day as fine as silk. Thanks. I have had a poor year, and season now closing, with an average of 65 lbs. of comb per colony, and most of it spoken for at 25 cts. per section. Best wishes.

Knox, Ind.

JAS. ARNOTT.

If you are in need of finest honey to supply your local demands I can supply you.

I can use more beeswax on cash or trade basis, and you will find me prompt with returns.

I should like to place my catalog in your hands.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

Holiday Greeting!

I take this opportunity to thank my customers and friends for the patronage, help, and encouragement given me during the last and former seasons. It has been my aim to have you all feel that I have sought, not your money alone, but your good will and friendship as well. My relations with you have been most pleasant, and it is a satisfaction to know that possibly I have rendered you some service. If in the future I can help you in any way, I shall count it a privilege to have your calls.

While any forecast of weather or crop conditions necessarily involves elements of uncertainty, the outlook for a good honey-flow in the North Central States the coming season could hardly be better. An order placed now will insure having the supplies on hand when needed, and will avoid the possibilities of vexatious delays when the rush is on. The December discount of 4 per cent is also a consideration.

May the Yuletide bring you much of joy, and the New Year hold in store for you blessings manifold.

E. W. Peirce, Zanesville, O.
136 W. Main St.

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner.

Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price \$1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

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Patent Practice in Patent Office and Courts

Patent Counsel of The A. I. Root Co

BEE-KEEPERS. ATTENTION!

If you have any extracted or comb honey to offer, also beeswax, send us samples of quality; state quantities and how packed. We pay the highest market price for the same.

CHAS. ISRAEL & BROS., NEW YORK
488 Canal Street

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. . . . Send for catalog

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182 Friend Street - BOSTON, MASS.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
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LEARN BEEKEEPING from the Beginning

"First Lessons In Beekeeping" and the American Bee Journal, one year, Both for Only **\$1.00**

"First Lessons in Beekeeping" is a 190-page book telling all that the beginner need know. . . . It has an attractive paper cover, and many illustrations.

"Doolittle's Scientific Queen-rearing," and the American Bee Journal, one year, Both for Only **\$1.00**

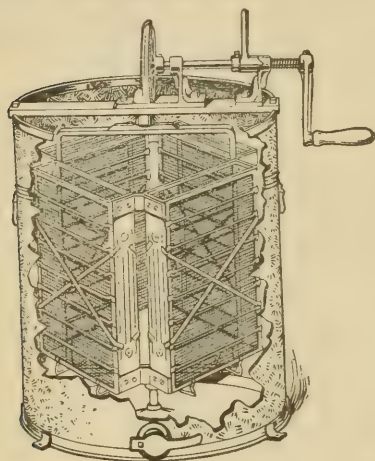
Doolittle's "Scientific Queen-rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen bees in perfect accord with Nature's way. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

The beginner will want "First Lessons;" the older beekeeper should have "Scientific Queen-rearing." You will not regret it if you send your \$1.00 now and get either one of these books with the JOURNAL, as the JOURNAL itself is worth more than the total cost.

AMERICAN BEE JOURNAL, . . . HAMILTON, ILLINOIS

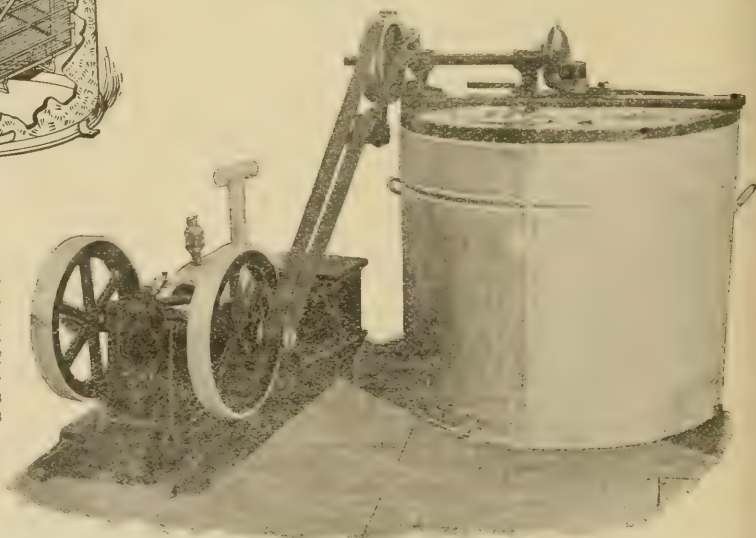
The Use of Root's

With the increased interest in and demand for the better grades of extracted honey, all beekeepers, large and small, are interested in honey-extractors. The time was when the small beekeeper thought it didn't pay to produce extracted honey, and, as a consequence, he lost quite a large per cent of the actual profit his bees might have made him. For instance, during the past summer, with the remarkable honey-flow there was in many localities, even in an apiary of ten colonies an extractor might have been made to pay for itself in a single day. Record honey-flows like this demand a rapid handling of the combs if the bees are to take advantage of the flow of nectar. They can not make new combs fast enough to store the nectar that must be gathered within a few hours, or it is lost. If the filled combs can be taken from a hive, extracted, and replaced at once, they will be filled again with astonishing rapidity, and hundreds of pounds of honey harvested that would otherwise have been lost.



A one-horse-power air-cooled gasoline-engine connected to an eight-frame extractor. For economy of floor-space and convenience of the levers this arrangement is perhaps the best.

For the small apiary the hand-run extractors are usually sufficient; but where any number of colonies are kept from which to produce honey for the market, the power-equipped extractors are by far to be preferred. Even the first cost is very moderate; and when the wonderful work done by these machines is taken into consideration it will readily be seen that the purchase of such a machine is an investment which yields the beekeeper a handsome profit.



The popularity of these machines is perhaps best estimated by reading letters received from a few of our customers who are using them, and from the fact that our trade in them is constantly increasing. We now have in the process of making, twelve Root Automatic Extractors for one beekeeper in the West, who has 2000 colonies of bees, and maintains 15 yards. Certainly this large beekeeper would not make such an investment were he not sure of results.

Honey Extractors

Our extractors are carefully made from selected materials, and with ordinary usage will last for years. All power machines are fully equipped ready for running. We make extractors in all sizes from two to eight frame, and the power machines in four, six, and eight frame size, or larger, if ordered special. The prices range from \$9.50 for a small hand-run machine to \$52 for an eight-frame power-equipped machine. A one-horse-power air-cooled engine is \$60, and a 1 $\frac{3}{4}$ horse-power water-cooled, \$65.

These machines are run by a one-horse-power gasoline-engine which may be put to so many other good uses about the place you will wonder how you ever got along without it.

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do, and more. I use the gasoline-engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiairy.

Pittsworth, Queensland.

F. C. GOLDER.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not be without it now, even if I had only fifty colonies.

DAVID RUNNING.

Grindstone City, Mich., July 19, 1910.

Uncapping Knife

Just a word about the new steam uncapping knife which seems to go quite naturally with the power extractors. No more perfect device has ever been put into the hands of beekeepers, and one who has any considerable amount of uncapping to do should not be another season without this knife. Steam may be generated for this in a half-gallon can over a single-burner oil-stove. We furnish the knife complete with the hose for \$5.00, and with boiler for \$6.00.

As regards the steam uncapping-knife, I think it a grand investment, so far ahead of the cold knife that it will pay any ordinary beekeeper to have the outfit. I purchased an outfit one year ago for my home yard, and thought so much of it that I got another this year for my outyard.

WM. ELLIOTT.

Adelaide, Ont., September 28, 1911.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, and sold it at 35 cts. a quart. The extractor is just fine—does the work completely.

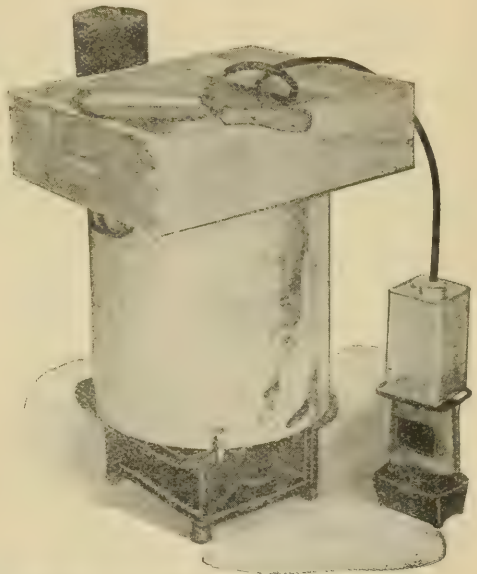
F. D. KING.

Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all.

V. V. DEXTER.

North Yakima, Wash., Jan. 18, 1911.



Root's Steam Uncapping-knife.—A half-gallon can over a single flat-wick oil-stove furnishes the steam necessary.

The A. I. Root Co., Medina, O.

NEW STOCK

The A. I. Root Co., of Sy
are constantly receivi
goods, and now
good time to
order to them
for the next
you are
early

We are now receiv-
ing goods for next sea-
son, and it would be a good
time for you to do likewise.

Send in your list for supplies
that you will need, and quotations
will be mailed you. Catalog for 1913
is not yet out, but you can use 1912. If
you have no catalog, one will be mailed
on request.

THE A. I. ROOT CO., SYRACUSE, N. Y.

**Water White
Alfalfa Honey**

**Light Amber
Alfalfa Honey**

**Light Amber
Fall Honey**

In any size quantities, in any size packages.
If your honey crop is short, and you want
to supply your regular trade, write to us for
prices. We are sure that we can supply what
you want at prices you can pay. Five cents
for a sample of any kind desired.

We want your **BEESWAX** to work into

DADANT'S FOUNDATION

or will pay cash for it in exchange for goods.
Four per cent discount on foundation and
bee supplies during December. It will pay
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Did you ever get a letter, broken in the fold, in an envelope hastening to dissolution? There is a thought here. It's not the way your letter looks *when you sign it*—it's the way *it looks when read*, that accounts for the difference in quality and cost of stationery.

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THE genuine Witte—conceded the best farm engine in America—now offered at actual wholesale prices. Yes, this is the engine that has lead the gasoline engine field for 25 years. Dealers have been getting the highest prices for the Witte. Now you can get one at actual factory price—what the dealer paid—and have the finest engine in your county.

Our Gas Well Saves You Many Dollars More

We do more than give you ordinary factory prices. We are the *only* manufacturers who have our own gas well. Power, testing, forge, foundry and heating fuels cost us nothing. You get the benefits. But you couldn't afford to own any other engine even if the Witte cost twice as much—because an average of 1 cent for every horse-power per hour cuts gasoline bills in half—pays for your engine in no time.

Every part guaranteed 5 years—full rated horse power on minimum gasoline guaranteed too. Built in all sizes from 1½ to 40 h. p., every one tested to 10% over load.

WRITE FOR 60 DAYS FREE TRIAL OFFER

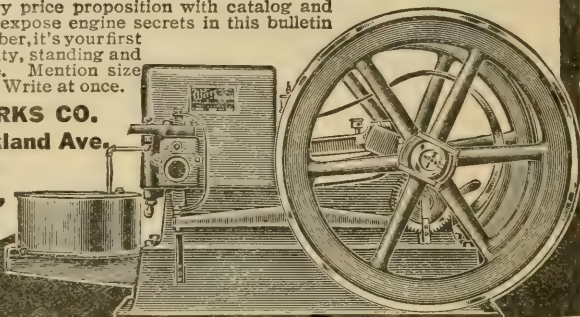
and complete, direct, factory price proposition with catalog and special offer bulletin. We expose engine secrets in this bulletin that will startle you. Remember, it's your first chance at an engine of quality, standing and reputation at a small price. Mention size needed or work to be done. Write at once.

WITTE IRON WORKS CO.

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**Every Part
Guaranteed
5 Years**



Use KEROSENE Engine Free!

Amazing DETROIT Kerosene Engine shipped on 15 days' FREE Trial. Proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

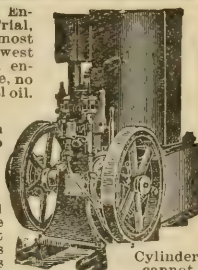
Gasoline GOING UP!

Gasoline is 9c to 15c higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 30 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low Introductory price. Write

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



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for your wagon. Use your old running gears—our steel wheels will fit them and make your wagon good as new. Send for free catalog of solid metal wheels (sizes to fit all axles) that cannot swell, dry apart or rot. Make a new wagon out of your old one. Write for the book now to

ELECTRIC WHEEL CO., Box 23, Quincy, Ill.

SOMETHING NEW "KANT-KLOG" SPRAYERS

Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted. Booklet free.

Rochester Spray Pump Co.
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Write
NOW!

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The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

Dept. 6.

"GLEANNINGS" ENGRAVINGS
Made by The GRAY PRINTING COMPANY Fostoria, O.
GLEANNINGS ENGRAVINGS

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A Postal Brings Johnson's 1913 Old Trusty Book, Free

Tells about the incubator sensation of the world. 400,000 sold—all making big money for owners. Tells about 30 to 90 day type trial offer, 10 year

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36-inch Stamped Center,

Only 39 Cts. prepaid.

Best quality linene with a ball of Euclid working floss FREE.

Extra floss, 12 cts. ball, prepaid. Address

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BARGAIN!

Here's the greatest REAL bargain on farm engines you ever saw. My new 1913 Model starts at a touch. It's the simplest to run—most staunchly constructed—sure in action—economical in operation—and develops more than 15 h. p. 13-4 to 15 h. p. These

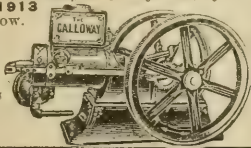
1913 Model Galloway Engines

Sell at \$50 to \$300 Saving To You

Get my book and learn all the facts. How to tell a good engine, how little to pay, how to buy on 30-day trial, 5-year guarantee—and special 1913 low-price offer. Write now.

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Stocks on hand at Kansas City, Council Bluffs, St. Paul, and Chicago. Prompt shipments.



A Wonderful Invention! X-Ray Incubator Uses Only One Gallon of Oil to a Hatch

Requires Only One Filling of Lamp

SHIPPED direct to you from X-Ray factory. No agents—no dealers. Guaranteed to please. Ordered filled same day received. Freight prepaid anywhere! X-Ray incubator has lamp underneath—square in the center—and not on the side. Thus it is the only one with perfect heating system. Egg-chamber is always at proper temperature—there's no cold side. Oil tank holds from 4 to 8 qts. of oil—only 4 qts. are needed for an entire hatch. Lamp is filled just once. Automatic Trip—exclusive X-Ray patent—cuts down flame at burner when egg-chamber gets too hot. No excess heat escapes—so only one gallon of oil is needed.

X-Ray Incubator

Built Different From Other Machines—has lid on top, with 2 double-glass panels. Thermometer is always in sight. To ventilate or turn eggs simply raise glass top. Eggs are never removed from X-Ray. X-Ray is only one made on right principle with lamp where it should be.

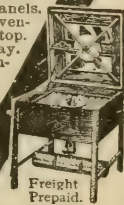
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Write now for our new 1913 book

No. 10. Get all facts.

We pay the freight.

X-Ray Incubator Co., Wayne, Nebraska.



Freight Prepaid.



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which tells you how my Belle City Incubator has again—and for the fifth time—smashed all records. This time winning world's championships with three 100 per cent hatches. That record proves my hatcher is certain to give larger hatches, sturdier chicks, make big money for you. Write for book—or send price and save time. Every claim guaranteed. Jim Rohan, Pres.



\$7.55 Buys World's Champion 140-Egg Incubator

Double cases all over; best copper tank; nursery, self-regulating. Best 140-Chick hot-water brooder \$4.85. Both ordered together \$11.50. Pmt. prepaid (E. of Rockies). Satisfaction guaranteed. Write for book today.

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Our Patented Automatic Razor Stropers automatically put a perfect edge on any razor, old style or safety. Big sellers, man wants one. Write quick for terms, prices and territory.

F. W. BRANDT STROPPER CO., 42 Hudson St., N. Y. C

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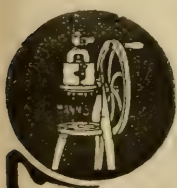
You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain, and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S Latest-model BONE-CUTTER

Cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on 10 Days' Free Trial. No money down. Send for our free books to-day.

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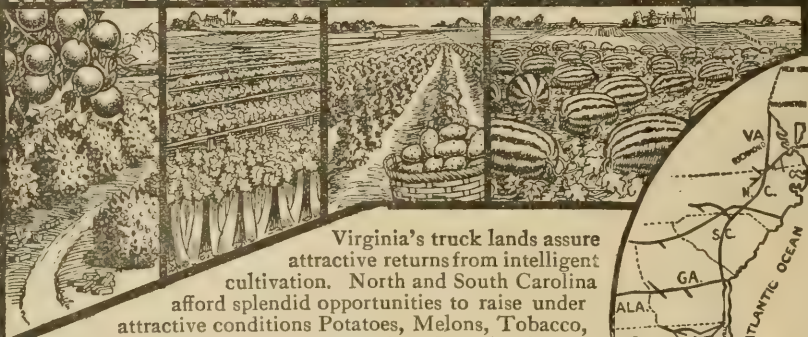
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J. A. PRIDE, Gen. Ind. Agt., SEABOARD AIR LINE RAILWAY, Suite 376, NORFOLK, VA. 7

FIRST TEN

GALLOWAY

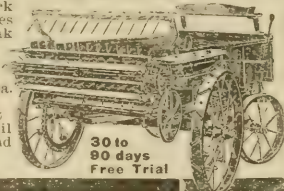
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Save \$25 to \$50 by direct-with-factory dealing on my special plan for

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Free Trial

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If you want a cheap, simple, absolutely sure way to keep EVERY Rabbit and EVERY Borer out of your orchard, paint your trees with "SULFOCIDE" the new concentrated sulphur compound. Simple to prepare. Cheaply and easily applied. One application will last for six months. Absolutely certain, "SULFOCIDE" will solve the rabbit problem. Write TODAY for booklet, "SULFOCIDE—Sure Protection from Rabbits and Borers." Address B. G. Pratt Co., 50 Church St., N.Y. City.

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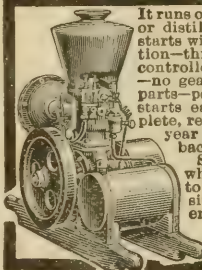
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Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (164)

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We make you the same price we would make the Dealer or Jobber. That is why we can save you money. Look at these very low prices.

11 1/2 CENTS A ROD

22¢ c. a rod for 18-in. hog fence.

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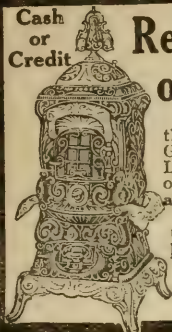
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Barbed Wire. Large free Catalog showing 100 styles of Farm, Poultry and Lawn Fence.

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to try in your home 15 days. Incandescent 300 Candle Power. Burns common gasoline. Gives better light than gas, electricity, acetylene or 15 ordinary lamps at one-tenth the cost. Unequaled for fine sewing or reading. Absolutely safe.

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A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

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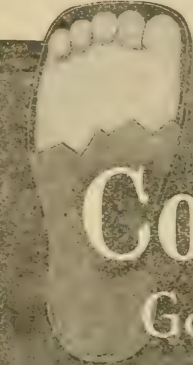
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THE ABC OF BEE CULTURE



The only cyclopedia on bees, 536 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$1.50 postpaid; money refunded if unsatisfactory. Catalog of supplies and sample copy of our semi-monthly magazine, *Gleanings in Bee Culture*, free if you mention this paper.

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Good Sense
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To preserve the shape—to maintain the health—to protect the *growing* foot is the mission of the Coward Shoe. Its wearing, during childhood, is a wise precaution against arch weakness and "flatfoot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

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EXCELLENT SERVICE—FINE MUSIC
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One block from New Penn. R. R. Station. Baggage free to and from this station.

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Absolutely Fire Proof - All Modern Improvements
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Prices Moderate.

C. F. WILDEY & SON, Proprietors

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

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FOR SALE.—White-clover comb honey, six cases to carrier. HENRY HETTEL, Marine, Ill.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Well-ripened light-amber extracted honey in 60-lb. cans, at 8 cts. per lb. Sample, 5 cts. H. J. AVERY, Katonah, N. Y.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY-PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—Fine new honey, left on hives until fall. Put up in 60-lb. cans at 9 cts. per lb. WM. WERNER, Chadwick, Ill.

Finest extracted water-white alfalfa honey. Also amber alfalfa and home-grown amber fall. DADANT & SONS, Hamilton, Ill.

FOR SALE.—The finest extracted honey I ever produced—gilt-edged in every respect. Clover with a little basswood flavor. In 60-lb. cans. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—White-clover and basswood extracted honey, blended in the extractor; put up in brand-new 60-lb. cans, 2 cans per case, at \$12 per case of 2 cans or more, F. O. B. Flint. Cash with order. This honey is the finest I have ever produced. L. S. GRIGGS, 711 Avon St., Flint, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTED.—To buy amber and dark extracted honey. Name price delivered here. A. G. WOODMAN Co., Grand Rapids, Mich.

WANTED.—White or light-amber Michigan or Ohio candied honey in 60-lb. cans. State price. W. R. GANTLEY, State St., Binghamton, N. Y.

WANTS AND EXCHANGES

WANTED.—To exchange for extracted honey, 50 Falcon chaff hives, covers tinned; 50 trays and 100 supers; no brood-frames. Will take 25 lbs. for each hive in lots of five. PERCY ORTON, Northampton, N. Y.

WANTED.—To exchange for extracted honey (dark preferred) one ten-frame glass exhibition hive and super; seven one-frame glass exhibition hives, natural wood; one home-made foot-power saw. Write for particulars. PERCY ORTON, Northampton, N. Y.

FOR SALE

A full line of Root's goods at Root's prices.

A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Will trade for bees or supplies, a fine home. F. W. BRAINARD, Canon City, Colo.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight.

G. F. STANTON, Buckingham, Fla.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.

C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—At bargain prices, 8-frame double-wall hives in flat, to reduce stock.

A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN Co., (Successor to J. M. Jenkins.) Penn, Miss.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Recleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

HELP WANTED

WANTED.—Experienced beemen for 1913.

W. W. FAIRCHILD, Heber, Imperial Co., Cal.

WANTED.—Solicitors. Established honey trade. \$75 month proposition to live men.

BULL & CAVANAGH, Hammond, Ind.

WANTED.—A man to take charge of bees and chickens. No smoker or drinker.

U. A. VINCENT, 33 E. Evans St., Florence, S. C.

WANTED.—Man to run 140 colonies for comb honey for season 1913. State salary wanted, and experience. Everything new. Care C. B. & Q. Ry. B. F. SMITH, Jr., Cowley, Wyo.

WANTED.—Several experienced apiarists and helpers for coming season; give age, experience, nationality, etc. Wages from \$30 to \$40 per month and board, according to experience and percentage of crop. Further particulars on request. SPENCER APIARIES Co., Nordhoff, Cal.

POSITION WANTED

One apiarist, queen-breeder, one assistant apiarist, desire engagement to work one or more apiaries on salary or shares for 1913; west of the Rocky Mountains preferred. References exchanged.

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White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

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Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

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INDIAN RUNNER DUCKS.—American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me. C. O. YOST, Rt. 4, Box D, Winchester, Ind.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

WANTED.—100 colonies of bees on Langstroth frames.
J. R. SIMMONS, Harvey, Ill.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

REAL ESTATE

FOR SALE.—Home, small apiary, and one acre of land. Healthful and good location, \$4500.
D. R. KEYES, Rt. 4, Montgomery, Ala.

Uncle Sam still has a few free farms in Florida. For a reasonable fee I will locate you on a homestead near here. F. M. BALDWIN, Parish, Fla.

FOR SALE.—Two lots, house and honey-house, in town of 5000, and 200 colonies of bees; excellent bee country; good markets. For particulars address ERWIN WILLIAMS, Ellensburg, Wash.

FOR SALE.—34 acres, seven-room house, barn, etc.; fruit and shade trees, close to town; unlimited bee range. Price \$2700. F. R. JORDAN, Rt. 2, Chadbourn, N. C.

FOR SALE.—Farm, 78 acres, no waste land; 20 acres heavy natural timber; good buildings, apple orchard, 35 trees, choice fruit, bearing heavily. Price \$4500. M. GIDDINGS, Fife Lake, Grand Traverse Co., Mich.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

POULTRY

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

PUBLICATIONS ON

BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 328 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 578 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the City Bound man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose \$ to cover the cost.

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Town

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SPECIAL NOTICES

By OUR BUSINESS MANAGER

EXTRACTED HONEY.

We have secured some of the finest extracted honey this season, and can ship promptly at the following special prices:

WHITE CLOVER, the standard honey of the East. In case lots of two five-gallon cans, 120 lbs. at ten cents per pound; in five-case lots at 9½ cts., and in ten-case lots at 9 cts. Or we can furnish it in one-gallon screw-top cans at \$1.60 per gallon in one-gallon lots, or \$1.50 per gallon in ten-gallon lots.

SWEET CLOVER, very fine, at the same price for all quantities named as the white clover.

ALFALFA, preferred by many, and a little cheaper. Case lots at 9½ cts.; five cases at 9 cts.; ten cases at 8½ cts.; in one-gallon cans at \$1.50; ten cans at \$1.40.

AMBER, from the fall flowers of different localities, 8½ cts. per pound in case lots; 8 cts. in five-case lots, and 7½ cts. in ten-case lots. In one-gallon cans, \$1.30 per gallon; \$1.20 per gallon in ten-gallon lots.

If you are interested in buying twenty cases or more of one kind or assorted, write us for special prices.

At this season of the year nearly all of the honey is candied. If you want it in the liquid state, please mention this in ordering.

THE FIRM OF TOEPPERWEIN & MAYFIELD, SUPPLY DEALERS IN TEXAS, UNDER A NEW MANAGEMENT; DEATH OF W. M. MAYFIELD.

We regret to announce that Mr. W. M. Mayfield, Secretary and Treasurer of the Toepperwein & Mayfield Co., of San Antonio, Texas, died recently in that city. Shortly before the death of Mr. Mayfield Mr. Udo Toepperwein sold out his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., will continue, we understand, with the new management. In this connection we give herewith an announcement they are putting out.

We take this opportunity to advise our friends and customers, as well as the public in general, of a change of ownership and management of the Toepperwein & Mayfield Co., occasioned by the retirement from the company of Mr. Udo Toepperwein.

Mr. Toepperwein's interests have been taken over by Messrs. R. W. Hearne and B. L. Raborn, both well-known business men of San Antonio. It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

TOEPPERWEIN & MAYFIELD COMPANY.

We are pleased to advise that Messrs. Hearne & Raborn are strong financially, and will be in position to serve the patrons of the old company even better than before. They own a large warehouse, and will no doubt be glad to see any of their friends and patrons whenever they are in the city.

In reference to the death of Mr. Mayfield, which, we may say, was not unexpected, we may add that his loss will be felt not only by his beekeeping friends but by a large circle of friends. He was a Mason and Odd Fellow, and also a member of the Fraternal Brotherhood. Surviving him are a widow and son. It is presumed, of course, the son will now be an active partner with the other gentlemen mentioned. We predict for the new management a large measure of success.

SPECIAL NOTICES

A. I. ROOT

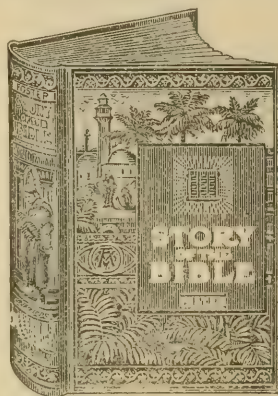
CLUBBING RATES.

GLEANINGS IN BEE CULTURE and *Practical Farmer*, 1 year, \$1.50; GLEANINGS IN BEE CULTURE and *Rural New Yorker*, 1 year, \$1.75; GLEANINGS IN BEE CULTURE and *Sunday School Times*, 1 year, rate up to January 1, 1913, \$1.75; rate after January 1, 1913, \$2.00. In order to secure the rate of \$1.75, it will be necessary that the orders reach us in time to be dated from January 1. Otherwise the rate for the combination will be \$2.00.

Many readers of GLEANINGS IN BEE CULTURE wish to include one or all of these publications among those papers which reach their homes regularly. For the benefit of such the clubbing rates above are given.

THE STORY OF THE BIBLE FROM GENESIS TO REVELATION, BY CHARLES FOSTER.

Told in simple language. Adapted to all ages, but especially to the young. Three hundred illustrations. More than 750,000 copies have been sent out, and the book has been translated into foreign languages.



Those who have read GLEANINGS for twenty years or more will remember what was said about the Story of the Bible, or, rather, how much was said about it over twenty years ago. I do not know just how I got hold of it; but as it is a good-sized book, with the whole Bible in regular order in language so plain that a child can understand it, it appealed to me at once. Of course I took it home and showed it to Mrs. Root and the children. Our youngest son, then nearly ten years old, took a great fancy to it. The result of his reading it so many times is that he has now and has had all his life a splendid bird's-eye view of the whole Bible—something of great value to any man, woman, or child; and I think even the enemies of the Bible, if there are any such in this present day and age, will be compelled to admit as much. In this age of information it is of vast importance that every person know just what is and what is not in the Holy Scriptures.

I think I make no mistake in saying that just now the Bible is valued and read more than ever before since the world began. It is now printed in some thing like 300 languages—that is, whole or in part; and it may not be out of place for me to state that the work of printing the Bible has resulted in giving an alphabet and a printed form to fully 150 languages. Of what other book can that be said?

Especially when Christmas is approaching, many wise and thoughtful parents think of this beautiful book as a Christmas present. If I am correct, the original author, Charles Foster, is dead; but a son of his has been for some time at work in getting out a new enlarged and revised edition. There are now over 700 pages in the book; and as it weighs about 3 lbs. the postage on it alone is 24 cts. There are 300 beautiful illustrations in it. As a rule I do not greatly admire Holy-Land pictures, such as we have in some of our Sunday-school books and papers; but the illustrations in this are beautiful and

wholesome. And besides these pictures there are four or five colored plates that are gems of art. The publisher informs me that they are copies of valuable old pictures in his possession. This book is not only valuable for children, but many a grown-up man and woman will find it a great help in straightening out the chronology of the Bible.

The regular price of the book is \$1.50, including postage; but by a special arrangement we are enabled to furnish it clubbed with *GLEANINGS* for only \$1.50 if you will send 24 cts. also to pay for postage; and all subscribers who have already paid for *GLEANINGS* one year or more in advance may have the book for an even dollar if they will send 24 cts. also for postage.

Convention Notices

The annual meeting of the New York State Beekeepers' Association will be held in connection with a beekeepers' institute under the direction of the State Department of Agriculture at Rochester, N. Y., Dec. 17, 18, 19, in the parlors of the Hotel Rochester.

IRVING KENYON, Sec.

The annual meeting of the Eastern New York Beekeepers' Association will be held in the Common-council Chamber, City Hall, Albany, N. Y., Wednesday, Dec. 27, 1912. Sessions at 10:00 A. M. and 1:30 P. M. Besides the regular business meeting and election of officers and delegates the following program will be presented:

Beekeeping as a Side Issue in the Professions, Rev. I. V. Lobdell, Troy.
Some Observations on Swarming, I. Van Auken, Altamont.

Extracted vs. Comb Honey, J. R. Snyder, Warwarsing.

Scientific Bee Culture, C. B. Loomis, Department of Agriculture, Albany.

Shall we Become a Branch of the National Beekeepers' Association? President.

Question-box.

A full attendance is desired.

W. D. WRIGHT, Pres., Altamont, N. Y.
S. DAVENPORT, Sec., Indian Fields, N. Y.

The New Jersey branch of the National Beekeepers' Society will hold its annual meeting in the Entomological Building at New Brunswick, N. J., on Friday, Dec. 20, 1912. The following is the program:

MORNING SESSION, 10:30.

Address by President J. H. M. Cook,

Essex Falls, N. J.

"Gentle Bees"—Penn G. Snyder, Swarthmore, Pa.

"Judging Honey"—Harold Horner, Philadelphia, Pa.

Question-box.

12:00, lunch and recess.

AFTERNOON SESSION, 1:00.

"The Hive in Winter"—Dr. C. D. Cheney, Hoboken, N. J.

"The Relation of the State Entomologist to the Beekeeper"—Dr. T. J. Huddle, New Brunswick, N. J.

"Bee Behavior," illustrated with slides—Dr. E. F. Phillips, Washington, D. C.

"Management for Comb Honey"—W. E. Housel, Hampton, N. J.

"The Future of New Jersey Beekeeping"—E. G. Carr, New Egypt, N. J.

Election of officers for 1913.

Election of delegate to national convention at Cincinnati Feb. 12 and 13.

Election of representative to State Board of Agriculture, Trenton, Jan. 7, 8, 9, 10, 1913.

PRIZES.

For best display of comb honey in beeway sections, one A B C of Bee Culture, 1913 edition, cloth.

For best display of comb honey in 4 1/4 x 1 1/2 plain sections, one A B C of Bee Culture, 1913 edition, half leather.

For best display of comb honey in 4 x 5 sections, one A B C of Bee Culture, 1913 edition, leather.

For best display of old books on beekeeping, one Langstroth on the Honeybee, 1859 edition.

Above are offered by the A. I. Root Co.

For best 5 pounds extracted honey, one Italian queen.

This promises to be one of the best meetings ever held. Ladies are especially invited.

J. H. M. COOK, Pres.

E. G. CARR, Sec.

The following is the program of the Washington State Beekeepers' annual convention, to be held Jan. 8 and 9, 1913:

MORNING SESSION, 9 A. M.

Meeting called to order by A. E. Burdick, President.

Annual report of President.

Annual report of Treasurer.

Annual report of Secretary.

Address of welcome by A. J. Splawn, Mayor, at 10 o'clock.

Response by President A. E. Burdick.

Paper from Miss A. A. Byers, Chelan County.

AFTERNOON SESSION, 1:30 P. M.

Meeting called to order by President Burdick.

Spring Management of Bees, Robert Cissna, followed by discussion.

Address by Mr. George W. York, President National Beekeepers' Association.

Preparing for Winter, Virgil Sires, followed by discussion.

Paper from the Dadants.

Paper from A. G. Kuykendall, Grandview.

JAN. 9, MORNING SESSION, 9 A. M.

Meeting called to order by President A. E. Burdick.

Should we Produce a larger Percentage of Comb Honey? C. W. Higgins, Wapato, followed by discussion.

What has been the Success of the Honey-producers' Association in Handling the 1912 Crop? A. E. Burdick, President.

What Benefits do the Beekeepers Enjoy from the National Association? E. B. Tyrrell, Sec. National Association, followed by discussion.

Should the Manufacturers and Beekeepers be More in Sympathy with each other?

Paper from The A. I. Root Co., followed by discussion.

Paper from some beekeeper, of a scientific nature.

Banquet at noon.

AFTERNOON SESSION, 1:30 P. M.

Meeting called to order by President Burdick.

Election of officers for ensuing year.

My Method of Handling Bees at Swarming Time, By Lee G. Simmons, Vice-president, Ellensburg, Wash., followed by short discussion.

Weather Conditions favorable for the Secretion of Nectar in Bloom, by S. King Clover, followed by discussion.

Paper from F. C. Fischer.

We will discuss ways and means of enlarging the membership of the Association, and of making the meetings more educational, enthusiastic, and entertaining.

The Washington honey-producers will hold their annual election of officers, and other business necessary to be transacted, on the 10th, following the beekeepers' convention at 9:00 A. M. in the courthouse, by order of the President and Secretary.

The A. I. Root Co.:—My apiary is the most northern of any in Canada, at least I think in the province of Quebec. I have 140 colonies, and we have had a dandy year for clear honey. I expect four tons. I have sold at twelve cents per pound for the last three years. I have no trouble to get the price. What I have left after my home trade I sell to Ottawa customers and the West.

Give my best wishes to our old friend, A. I. Root. I hope he may long live to write up the Home Department.

Yarm, Que., Aug. 27. ROBERT MCJANET.

The A. I. Root Co.:—I started with 8 colonies in spring, and have increased by natural swarming to 17 colonies, and made 650 lbs. of comb honey. I sold all my honey at home, and could have sold that much more. I have paid for all the colonies, hives, surplus supers, and have about \$18.00 left. My eight colonies wintered perfectly, and it was the coldest winter we ever had. It was as low as 30 below zero, and my hives stood on summer stands, not protected by any thing—not even a windbreak. I merely placed sail duck over the brood-frames, put on a super cover, and then telescope cover—no packing. I don't suppose I lost an average of 100 bees per colony.

Frederick, Md., Nov. 16, 1912. B. U. CRIST.



Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justify entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on MR. HUTCHINSON'S life by Prof. A. J. Cook, in GLEANINGS:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our bee-keeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work, to which he was so entirely devoted. His quick apprehension and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Most fortunate for all bee-keepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of ADVANCED BEE CULTURE. Only a few short days after an editorial by Mr. E. R. Root, editor of GLEANINGS IN BEE CULTURE, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly)—known and read by bee-keepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and GLEANINGS one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 80 cents extra.

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The Countryside Magazine



Are You Going to Build?

If so, send us 25 cents, and we will mail to your address the last three issues of SUBURBAN LIFE, as follows:

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November —Country Home Number

These issues are full of house-building plans and suggestions of the very latest character, and are worth a year's subscription to the intending builder. This is an introductory offer. The regular price of the magazine is \$3.00 a year—25 cts. a copy.

Send in the coupon at once, with full name and address.

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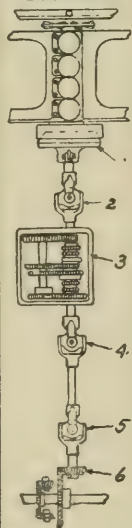
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LAMBERT service is winter-in-summer-out service. For twelve years the LAMBERT has been known the motor world over as the "Best year round car in the market." Let us send you the reason why in a booklet "An Automobile Catechism." Write for it.

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Easily climbs a 50% grade.

Just as the tungsten lamp outshines the incandescent, and the locomotive is more efficient than the stage coach, the Simple LAMBERT PATENTED FRICTION TRANSMISSION outpulls and outlasts the complicated and delicate sliding gear transmission. Two simple components in the Lambert as compared to six complicated units in the sliding gear car. You should know more about it.

Five excellent models beautifully finished with luxuriously upholstered straight line bodies

\$800 — \$1450

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